FLIGHT
The AIRCRAFT ENGINEER & AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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Oct. 5 ...	Aviation Meeting at Barcelona.
Nov. ...	Entrance Examination for R.A.F. College.
Dec. 19 to Jan. 4, 1920. ...	Paris Aero Show.

EDITORIAL COMMENT

THERE is reason to think that the Government as a whole and the Air Ministry in particular are suffering at the moment from infirmity of purpose. The word has gone forth that there is to be inaugurated an era of ruthless economy and that Estimates are to be cut down to a shadow of their War-time dimensions. Apparently the Ministry has been taken by surprise, and is hard put to it to know where to begin. Those responsible for its policy appear to have maintained the impression that the R.A.F. was to keep something approximating its war establishment in readiness for another great conflict, and it has only just dawned upon them that we have but lately emerged from the greatest war in history which was waged to end war. If that is a correct interpretation of the intentions which led us to make that War, then it should logically follow that to visualise a military air arm approximating in strength to that existing at the time of the Armistice, is an obvious error into which no responsible person should have fallen. However, that need not be further discussed now. The point at issue is of what is to happen to aviation at large and of what exactly is to be the policy of the Government in regard to it.

The Government and Civil Aviation

Two or three weeks ago we pointed out that if commercial aviation is developed along the right lines there is no need for us to maintain more than a practical nucleus of a military air force, since by a well-thought-out scheme of a Flying Reserve, attractive enough to bring in all the desirable civilian pilots, we should have all the *personnel* necessary for defence in case of a sudden outbreak of war. All we should need in the shape of an active force would be the limited number of squadrons necessary as a complement to the expeditionary force which must be maintained for the purposes of the "little wars," in which a far-flung Empire like our own must almost always be engaged, with the necessary complement of aircraft for the use of the peace-time Navy. If that is adopted as the basis of the aerial defence scheme, it follows that there will be an enormous saving on the Air Estimates and a consequent economy to the nation. But economy to be real economy must not be too ruthless. There is such a thing as being penny wise and pound foolish. Commercial aviation must be considered. Not only is it essential to the scheme of defence we have outlined, but it is bound to play an enormously important part in transport development. In that development this country must take its full share. It cannot afford to do otherwise, but to do it we must recognise that in the initial stages a large amount of State encouragement must be forthcoming. Therefore, the Government and the Ministry must make up their minds that the next Air Estimates must show a considerable drop in the sums required for the military branch and a corresponding increase in those to be allocated to civil aviation. Nor need the public be startled at such a pronouncement. Whatever sums are allocated to civil aviation, there is more than the possibility that before long a substantial revenue will accrue. In this connection it may be remarked that the aeronautical correspondent of the *Observer* quotes an

interesting calculation by a sound authority, based, it is said, upon good information. As a matter of fact, we have good reasons for believing that the source is an official one and that the information is indeed based upon the best data existent. What the authority in question says is this :—

" The maximum number of miles flown during one year of war was 245,000,000, and the average load carried during this time was not more than one-twentieth of a ton. The average number, therefore, of ton miles per year of war amounts to 13,000,000. The Empire's mail matter carried more than a distance of 500 miles in one year probably amounts to 10,000 tons. The ton miles per year therefore amount to 5,000,000. Taking the probability of war as occurring once in fifty years, we get comparative figures for military and civil aviation in the future as follows :—

" Military Flying.—260,000 ton miles per year.

" Civil Aviation, State Mail.—5,000,000 ton miles per year.

" It will therefore be seen that civil flying, by which is meant the carriage of the Empire's mails, represents twenty times the ton mileage of military aviation. From this conclusion the general trend of air policy may be foreseen : the organisation should provide for State mail service as compared to military service in a proportion of roughly 20 to 1. From this it follows obviously and definitely that the whole organisation should be mainly a civil one."

Assuming the correctness of the figures—and we believe them to be so—the argument set forth in the concluding paragraph, viz., that the whole organisation of the Air Ministry should be mainly a civil one, is irresistible."

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The Ministry of Transport and Civil Aviation

The oft-repeated statement that the Ministry of Transport is to take over the care of civil aviation has been going the rounds again, but has met with a somewhat qualified official denial. Asked as to the accuracy or otherwise of the rumour, a high official of the Ministry stated that nothing was known of it, and added : " Even if the rumour were true, the transfer could not be carried out unless an Act of Parliament were passed." We do not think there would be any particular difficulty in getting such an Act through the present Parliament. The Government need only threaten to resign and they could get any sort of Act they liked through both Houses ! That, however, is not the point. We do not like these constantly recurring rumours about the control of aviation, and still less do we like the prospect, however remote, of its passing into the hands of the Transport Ministry, which already has enough to do to keep it quite busy for a very long time to come. Nor has aviation developed so far yet that it can take its place alongside other means of transport and be subjected to the same species of routine regulation. It still requires to be nurtured and fostered through a trying time, and that can obviously be better done by the Air Ministry which, with all its faults, at least consists of men who know the subject, who have given considerable time and thought to the problems besetting the future, and who believe in the possibilities which lie ahead. To take it away from them and place it in the hands of Sir Eric Geddes and his men, who know nothing at all about aviation or its needs, and who would be entirely out of sympathy with its aims, would be absolutely fatal to its future. It is one of the things which cannot be done, even in the sacred name of " economy."

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The Navy and the Air

It is becoming increasingly clear that the higher naval thought is unable to take kindly to the idea of an Air Service over which the Admiralty has no administrative control. The latest to enter the lists in favour of the reversion of control of naval air units to the sea command is Rear-Admiral Adair, who sets forth his views in a long letter to the *Morning Post*. We need not follow his arguments right through, particularly as he advances no new reasons for the change he advocates. He gives his case away, as we think, when he says that " every Air Force officer who has performed both naval and military work in the late War knows how different they are and what peculiar knowledge is essential to each."

Admitted that he is attempting to prove that work in the air in conjunction with the Fleet is so highly specialised that it can only be performed by the officer who has received a naval training, it would be equally true to predicate that every naval officer who has performed both naval and Air Force work in the late War knows how different they are and what peculiar knowledge is essential to each ! The answer to all such arguments as Admiral Adair brings to bear on the subject is that the system of control of the Air Services by the Admiralty and the War Office was given a thorough trial during the War and failed egregiously. It was not until we got a completely separate Air Force that we gained command of the air and kept it. As nothing succeeds like success, it must be conceded that the present system has stood the test and been proved to be in advance of the other.

Admiral Adair also brings to bear the argument that a separate Air Force is unsound economically, since it means the existence of a superfluous spending department of State. With all submission we regard this as a shallow reason. If that were all, why not group the whole of the fighting Services under a single Board and wipe out the rest ? As to who or what should control the Services, we might suggest that the Board of Admiralty and the Army Council should meet and decide the point by tossing for it ! Presumably the administrative cost of each is about the same so that, economically, it would not matter which won. The country would save money in either case. Whether the idea of the Navy being administered by the Army Council would appeal to the gallant Admiral is another matter. No doubt he would say it is impossible, owing to the difference of work and training, and the peculiar knowledge essential to each ! And therein we should agree, as would every sensible person with more than a superficial knowledge of these matters. It seems to us that those who are agitating for the return of the Air Services to War Office and Admiralty control have yet to grasp the fundamental fact that war in the air is as highly specialised as either sea or land warfare. Even the lessons of the War do not seem to have adequately driven it home, and until it is appreciated we shall always have with us the demand for a return to conditions which were proved by the War to be utterly wrong. Fortunately, there is no discernible intent on the part of the Government to revert to the bad old conditions, but a careful watch will have to be kept on events if the reactionaries are not ultimately to gain their desires.

Flight—And the Men

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Lieutenant-Colonel FRANK K. McCLEAN, a prominent member of the Royal Aero Club Committee, who did valuable work in the R.N.A.S. and later in the R.A.F.

Some Lessons from the Schneider "Race"

L'affaire Schneider of September 10 has not, after all, taught us much. Had the race been run in proper fashion there would at least have been some concrete proof of speeds attainable with modern seaplanes and flying boats. As it is, there are no official figures available of the speeds actually attained by the different machines. That great increases have been made since the last Schneider Cup Race in 1914 was obvious to all who saw last Wednesday's event and who had the opportunity of seeing the 1914 racers. When, however, it comes down to hard figures and facts, these are absent. The only machine which was timed at all was the Savoia flying boat, which did the laps in somewhere in the neighbourhood of 10 minutes. As the course was approximately 20 sea miles—or about 23 land miles—the speed would work out at close on 140 m.p.h., which is very fast for a machine of the flying boat type, fitted with an engine of 250 h.p. Since, however, the Savoia was not seen from the mark boat, it is really impossible to state what was her actual speed. If the view advanced from one quarter —that the Savoia flew wide so as to make sure of rounding the boat—is the correct one, then her speed would work out at considerably more than 140 m.p.h. If, on the other hand, the opposite view—that she rounded the wrong boat—is taken as being correct, then, according to whether this second boat was nearer or farther away from the starting point, the speed works out at more or less, respectively, than the 140 m.p.h. So, not even in this single instance have we the satisfaction of having reliable figures of the speed actually attained.

In the case of some of the other competitors the only figures we have are those of the speeds indicated on the respective air speed indicators. Thus, the Sopwith Seaplane has reached an indicated level speed of 165 m.p.h.,, while the Supermarine "Sea Lion" has done close on 140 m.p.h., indicated. As the Sopwith was patently the fastest machine at Bournemouth, she may be taken as representing the high water mark of seaplane speed. As to the rest, it would be merely guess work to attempt to arrive at their speeds. Without being very wide of the mark it may, however, be assumed that with machines now in existence the seaplane type is capable of a speed of somewhere about 160 to 165 m.p.h., while the flying boat type can be assumed with fair certainty to be capable of 140 m.p.h. Both these figures show an enormous increase on any hitherto obtained, and as pure speed figures may therefore be considered eminently satisfactory.

When, however, the question arises of the utility of such speeds, last Wednesday s events tell a rather different story. Out of the four seaplanes that actually turned up at Bournemouth two were unable to start on account of their floats having sprung a leak, while a third, also with leaky floats, did start, although it landed again. It should be pointed out that its landing was *not* necessitated by the leaky floats, however, but by the fog. It is quite evident that at present it is not possible to attain these high speeds while at the same time retaining the seaplane as a seaworthy craft. A race like the Scheidner tends to produce, indeed is intended to produce, speed machines pure and simple, although the two alightings asked for in the first lap form in some measure a check on the speeds by insisting that the machines must at any rate be sufficiently far removed from the freak to be able to alight twice during the race. Now, the 10th of September brought an absolutely calm sea at Bournemouth, and if, in spite of this, three competitors of the seaplane type had float troubles, this is rather an indication that the makers had cut the limits too fine, leaving no margin whatever for a rough sea.

On the other hand, the flying boats did well, as one would expect them to do, in such a calm sea. We are not taking into account the damage caused to the hull of the Supermarine boat through striking an object on the water. No hull structure at present known to man, and light enough to be lifted into the air, would stand up to hitting a solid object while travelling at 80 m.p.h. or so. Up till that time, however, neither of the two flying boats had had any trouble from leaks. It therefore looks as if, for seaworthiness, the boat is the better type, especially since it has been demonstrated that it can be made quite reasonably fast, although possibly not quite so fast as the seaplane type.

An Adventurous Voyage

SETTING out from Hounslow on September 6 on a visit by air to Italy, with a view to arranging a settlement of certain outstanding points regarding civil aerial communication, Lieut.-Col. W. D. Beatty and Lieut.-Col. W. O. Raikes had an exciting termination to their trip. Their machine, a Bristol fighter adapted for commercial use, dropped its propeller about 50 miles from Rome, but they made an excellent landing in the middle of the Campagna, north of Civita Vecchia.

The machine left London at 11.30 a.m., reached Lyons at 5.50 p.m.. Starting again at 6.30 a.m. on the following day, it was at Fréjus at 8.50, and arrived at Pisa at 1.50, leaving again at 3.15.

After the machine had been anchored out all night and while awaiting the arrival of a car from Rome one of those sudden and rapid fires common after the drought of summer swept over the Campagna and caught and destroyed the machine.

Launch of H.M.S. "Hermes"

THE aeroplane-carrier, *Hermes*, was launched from the yard of Messrs. Sir W. G. Armstrong, Whitworth & Co., Ltd., on the Tyne on the 11th inst., but it is stated that she will not be proceeded with at present.

The *Hermes* has a length of 548 ft. and 70 ft. beam, with a displacement of 10,950 tons and a speed of 26 knots. The whole length of the flying deck of the *Hermes* will be available for starting and landing the planes, the funnels being arranged horizontally.

The armament of the *Hermes* will consist of a number of light guns for anti-aircraft protection and several 6-in. guns for heavier work.

FLIGHT "MILESTONES" IN AMERICAN NEWSPAPERS

OUR "Milestones" are being reproduced in American aeronautical publications without a single word of acknowledgment. We would say that these greatly lose the value of the originals in FLIGHT, as our scale drawings, prepared at great trouble and expense, are ALL of uniform scale, relatively to one another, whereas the copyists reproduce from our drawings at any old size, so that direct comparison is impossible. We issue this note of warning, as, irrespective of the discourtesy, if nothing worse, of annexing without acknowledgment the result of the work of FLIGHT'S technical staff, those to whom this series appeals, should understand they are unable through foreign publications to appreciate the full value which attaches to the original FLIGHT series..—ED.

A SOPWITH TRIPLANE ON THE WAY FOR A DOUBLE EVENT.

By J. McGilchrist.

The Schneider Cup Contest

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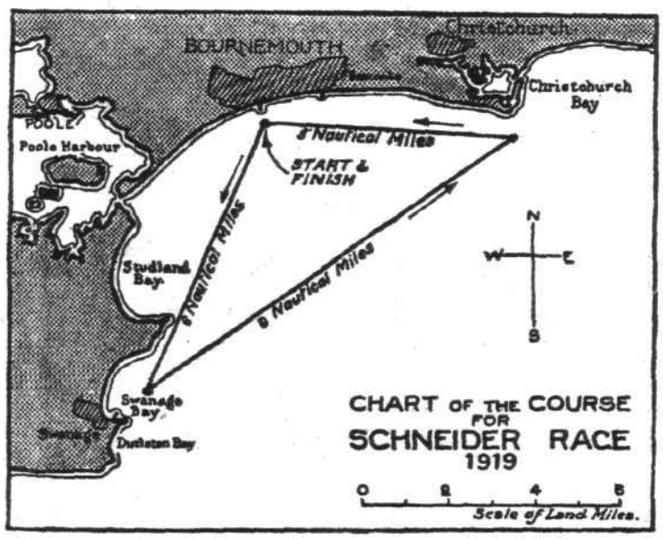
Note the Fairey, the Spad and Nieuport machines on the beach.

[It cannot be said that the Schneider "Race" at Bournemouth on September 10th was a success. In fact, in modern slang, it would undoubtedly be termed a "wash-out." The general public, gathered at Bournemouth in tens of thousands, will unfortunately take the results as proof of unreliability on the part of seaplanes and flying boats. And it can scarcely be blamed for such a view, not realising that the Schneider Race is purely a speed contest, to stand a chance in which competing machines must sacrifice other qualities. In view of the importance to the British Empire of a successful development of the seaplane or flying boat, such a result is to be deplored, and as the same holds true to a great extent in other countries, it is a question whether it is not time that the rules were reconsidered. Quite apart from this side of the question, however, and taking the rules as they stand at present, this year's contest was a much greater fiasco than it need have been, even making allowances for the unfavourable weather conditions. With proper management, and in spite of, or perhaps on account of, the number of officials engaged in "organising" the race, the management was anything but satisfactory, there need certainly not have been the confusion and uncertainty which was the main feature of the day. We need not here go into details. Our special commissioner refers to some of the criticisms levelled by general opinion at various happenings during the day. And elsewhere we publish specific instances from people concerned in the race. Numerous as were the sins of omission which were alleged during the day, it was, we think, a sin of commission which formed the chief count against the organisers, namely, that of ever allowing the race to start with the weather as it was.—ED.]

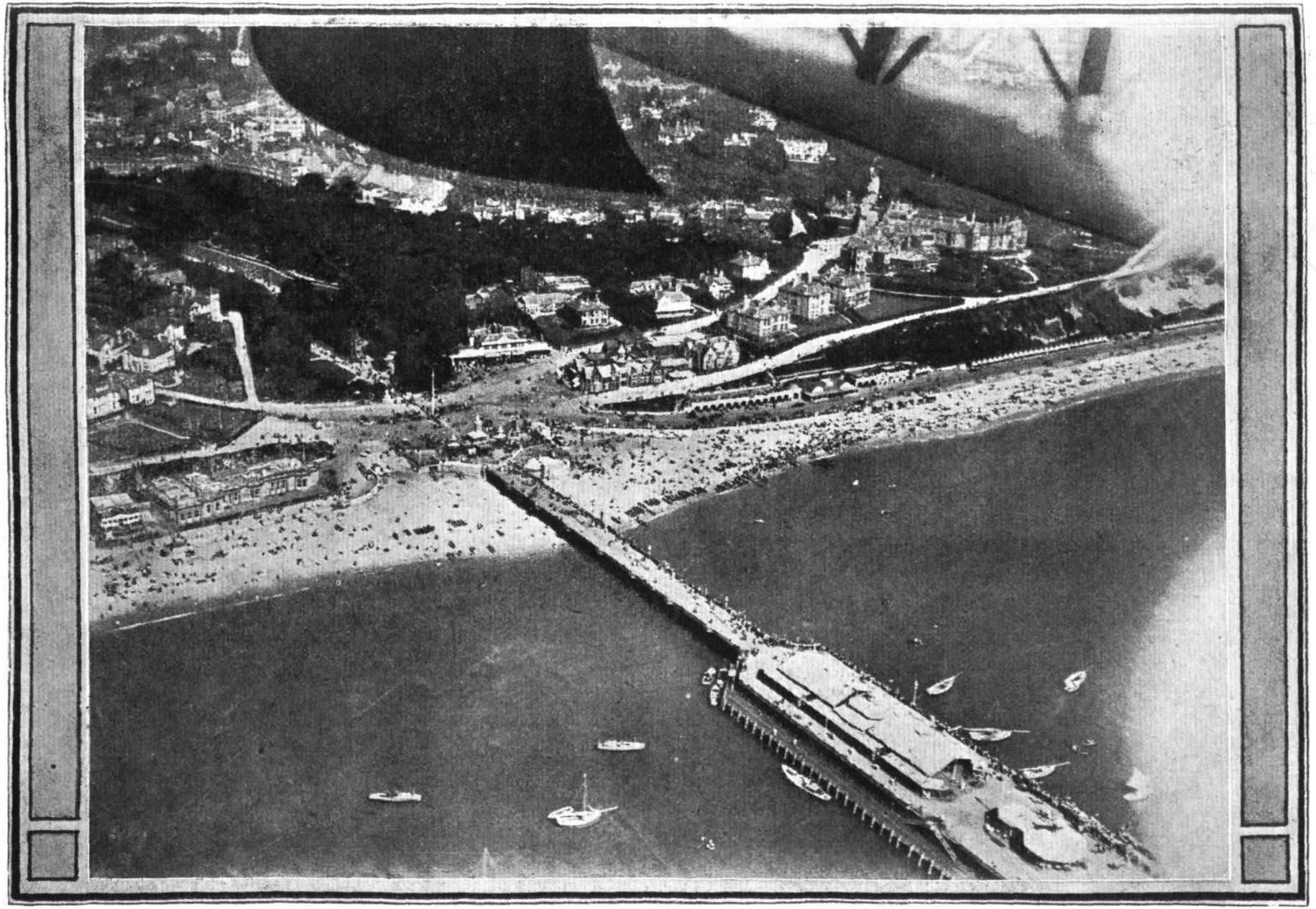
BY OUR SPECIAL COMMISSIONER.

BOURNEMOUTH, SEPTEMBER 10TH, 1919.—The mist is hanging low over the cliffs and sea. From the platform above the lifts at the foot of Meyrick Road no trace is to be seen of the Pier. One knows it to be somewhere off on the right, but it is obscured by the mist. From seawards a band is heard faintly, but it is impossible to determine exactly from which direction the sound comes. However, the lift attendant volunteers the information that it comes from a couple of warships lying at anchor about a mile and a half out to sea. The beach is deserted. The good people of Bournemouth are late risers, and certainly one does not feel inclined to blame them to-day. The fog-enveloped beach does not look particularly inviting. Near the foot of the Pier, the watermen are scrubbing their boats and getting ready for another day's holiday-making crowd. They express the opinion that the fog will lift towards mid-day, and towards 11 o'clock this optimistic view begins to be justified. The warships at anchor are seen faintly through the mist, as is also Boscombe Pier. Gradually, a very slight breeze springs up, and in a surprisingly short time it is possible to see several miles out to sea, while towards the East, Hengistbury Head becomes faintly visible. As this is to be one of the turning-points in the race, one begins to hope that perhaps the fog will clear after all. There is still no sign of Handfast Point and the "Old Harry" rocks, past which the second mark boat is to be moored in Swanage Bay.



We have a walk out on the Pier to see what arrangements have been made for the coming contest. A few rows of seats, which are not usually found here, have been placed on the pier head, and slightly on one side is a large scoring board on which later the times for the 10 laps are to be chalked up. The Pier is gradually filling up with the ordinary seaside visitors, who have come out to promenade up and down to the strains of a band playing in the Pier Pavilion. Craft of all descriptions are lying at anchor on both sides of the Pier. There are fast motor boats from Southampton, among which one recognises "Tiddleywinks," which is to act as tender to the Supermarine flying boat, graceful yachts out of Poole Harbour, fishing smacks from Swanage which have taken a day off to come and see the seaplane race, and innumerable rowing boats, local and otherwise. The tenders and steam pinnaces from the warships run to and fro, fetching mail and carrying visitors. A few M.L.'s flying the White Ensign are cruising round, serving as a reminder of the late War and its submarine hunts. Later in the day they will assist in policing the course and lend a hand in any odd job connected with the race.

Just after 11 o'clock the sound of an aero engine is heard, and everybody is agog, expecting the approaching machine to be one of the racers. Suddenly it is seen approaching from the East. It is a flying boat, but looks too large and too slow to be one of the competitors. As it comes nearer it can be identified as one of the Supermarine passenger carriers, which are now so familiar to Bournemouth visitors. It alights between the two piers and comes taxying up to a buoy near "Tiddleywinks." In addition to its pilot, the Supermarine carries Mr. Scott-Paine and two of his associates from the Supermarine Works. Mr. Scott-Paine goes on board "Tiddleywinks" to see that everything is in order for her coming duty as tender to the flying-boat racer, and the passenger carrier fills up again to get in a couple of hours of "flipping" before the race. Yachts and motor-boats continue to arrive, among them the T.S.Y. *Ombra*, which has been loaned to the Royal Aero Club, and will mark the starting and finishing point. The weather is now fairly clear, both Hengistbury Head and "Old Harry" being visible. Just



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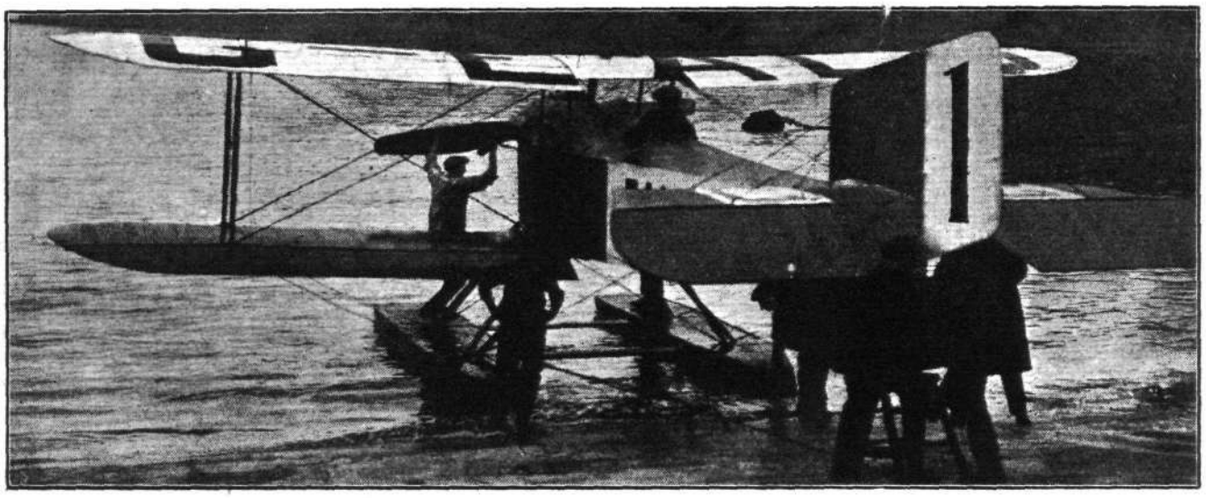
ABOVE THE STARTING POINT FOR THE SCHNEIDER CUP: Bournemouth pier snapped from a Supermarine flying-boat on the morning of the race. To the right of the pier, sitting on the beach, may be seen the Fairey seaplane. At one o'clock the public were cleared off the pier, and then re-admitted upon payment of a special fee.



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SCHNEIDER CUP: Starting up. The Fairey seaplane is here seen just before getting away from the beach.

after 12, another aero engine is heard, and shortly the Fairey seaplane, piloted by Lieut.-Col. Vincent Nicholl, D.S.O., roars across the Pier. The machine appears to be fairly fast, but one can imagine Mr. Fairey praying for a bit of a breeze, so that the general sturdiness of his machine may be taken advantage of for negotiating a sea. At present, Bournemouth Bay is as smooth as a mill pond. The Fairey proceeds towards Swanage, presumably to make a trial tour of the course. In a few minutes she appears again, and is run on to the beach just east of the Pier, where her tanks are replenished. In the meantime, about 20 minutes past 12, two machines approach at a good pace. They are soon identified as the Spad seaplane and the Savoia flying boat, piloted by Le Cointe and Janello respectively. Racing neck and neck, they pass the Pier, the Spad just outside the pierhead and the Savoia close to the beach. They also disappear towards Swanage, and a little later return and alight, the Savoia having to swerve to avoid a rowing boat whose occupants do not appear to realise the risk they are running, nor the danger they are to the pilots. The Spad alights between the two piers and for a time appears to be tail-chasing on the surface, affording in the meantime a good opportunity for the bathers in the vicinity of the lifts to have a look at her. Presently, however, the pilot opens his throttle and comes taxying along at a fairly high speed. In a few minutes the Spad is moored to one of the buoys just east of the Pier, where usually the Supermarine passenger-carriers are anchored. The Savoia is taken in tow by a motor boat, and after a visit to the *Ombra*, is also brought to rest near the Pier.

The next machine to arrive is the Supermarine "Sea Lion," which comes along at a great pace and disappears in the direction of Swanage. As the French Nieuport which was expected at Cowes on Tuesday is now known to have come to grief in the Channel and to have been taken back to Havre, only two more competitors are yet to come: the Sopwith and the second Nieuport. Just before one o'clock a machine is seen in the direction of Hengistbury Head. From its great speed, it is generally thought to be the Sopwith, but as it crosses the Pier, one can see the name "Avro." It is Captain Hamersley, who has come over to see the race, and to stand by in case any of the British competitors are unable to start. Considering its comparatively low power, the Avro appears to be extremely fast. After a few evolutions the machine makes a landing just beyond the *Ombra*. The heels of the very long floats touch first, and the machine is jerked to a horizontal position, commencing a short series of longitudinal undulations that somehow are reminiscent of a buck-jumping Texas pony. However, there does not seem to be any tendency for the machine to turn over on her nose, and she is soon taxying along, being apparently quite easy to steer on the water. It is noticeable that of the seaplanes the Fairey, with its short floats, tail float and water rudder, is able to steer on the sea at lower speeds than the others. At 1 o'clock the Supermarine boat comes to rest east of the Pier, having made an excellent landing. This splendid little flying boat appears to handle equally well in the air and on the sea, and for a flying boat she is certainly very fast. Five machines are now at rest just to the East of the Pier: the

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THE SCHNEIDER CONTEST: The Sopwith seaplane.

Fairey is sitting on the beach, the Supermarine, the Savoia, the Spad, and the Avro being moored to buoys. One notices that the Spad appears to have a slight list to starboard, as if her float on that side is leaking.

In another half-hour the race is due to start, and some doubt, not altogether unmixed with a little anxiety, is beginning to be felt as to whether or not the Sopwith and Nieuport will arrive in time. Just then another machine is seen to be coming along at a tremendous speed. It is probably the Sopwith, although one cannot yet be quite sure, as the Nieuport is also said to be very fast. The machine crosses the Pier. Yes, it is Hawker without a doubt. The pace is prodigious, and even to the uninitiated the Sopwith is obviously very much faster than any of the other competitors seen so far. The difference is such as to be unmistakable. Those who had heard with a certain amount of scepticism rumours of a speed in the neighbourhood of 165 m.p.h., are beginning to think that it may be true after all. Hawker makes a perfect "landing," in spite of the great speed at which the landing is made. The perfectly calm sea favours him. Taxying along, apparently steering very well on the surface, the Sopwith is beached to the west of the Pier, where it is soon surrounded by an admiring crowd.

There is still the Nieuport to come. Knowing the amount of work to be done on it when last seen on the night previous, one begins to wonder if, in spite of the heroic efforts made at Cowes, it will be ready in time. It is now 2.30, and, according to schedule, the race should start. The Fairey seaplane has got going, and is cruising about near the starting line, ready on the tick of the clock. The other machines are still at their anchorages, and much to the disappointment of the visitors, a motor boat goes out to the Fairey, one of the crew shouts some instruction, and the Fairey returns to the shore. Apparently, the race will not start yet. At 2.50, the Nieuport arrives at great speed, and is brought to rest east of the Pier. There is still no indication of a start being made, and the thousands of onlookers who literally line the coast from Poole Head to Hengistbury Head are watching the weather with misgivings. The fog is getting denser. Not only are Hengistbury Head and "Old Harry" enveloped in the fog, but the two warships at anchor are entirely blotted out from view. It is evident that with weather conditions as they are at present it is quite impossible to run the race. The Supermarine is cruising about near the starting line, but has to return to her moorings.

For a time it looks as if the race will certainly have to be postponed to another day, as it is getting rather late, and local experts give little hope of improvement in the weather. In the meantime the Spad and Nieuport seem to be in trouble with their floats, and are beached to the East of the Pier. Nobody appears to worry much what becomes of them. From the yacht word comes that the race is postponed till six o'clock, and the general opinion is that it is "off." However, the French crews are tinkering with their floats, hoping to put matters right in time for the postponed start.

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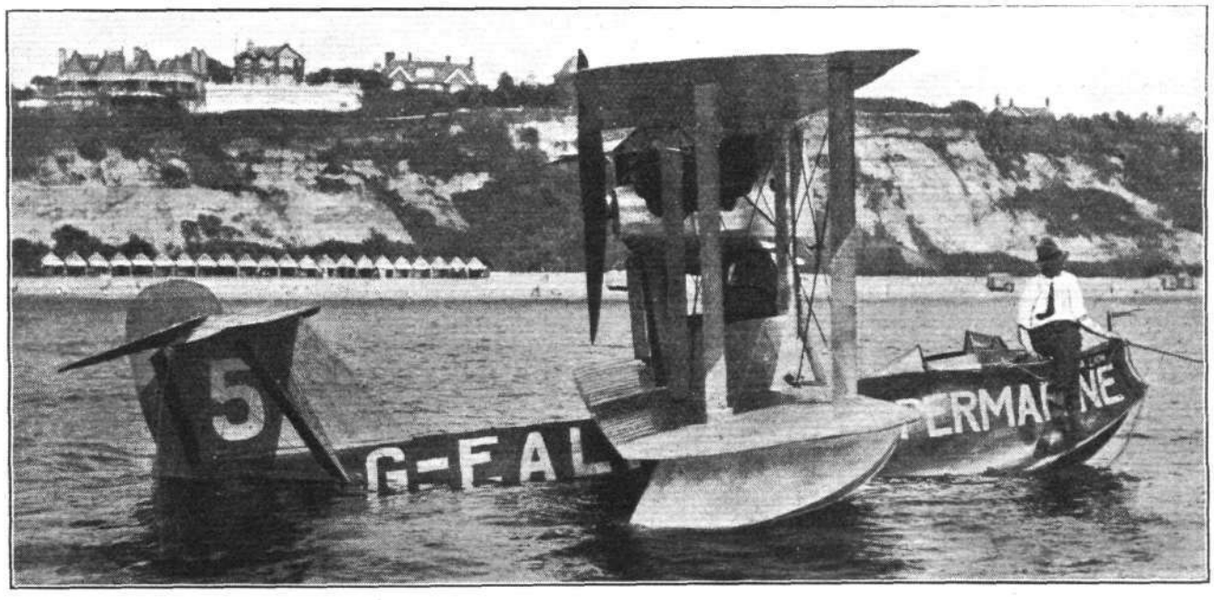
SCHNEIDER CUP : The Supermarine Team. From left to right, Squad.-Com. Hobbs, who piloted the Supermarine flying-boat, Mr. Scott-Paine and Com. Bird.

Suddenly, there are indications of a slight breeze, and in a very short time the warships are visible once more. Is it possible that it will clear after all? For a time it looks probable. Then the fog settles again. On the Pier people are beginning to give up hope. In the Royal Aero Club enclosure at the head of the Pier, members are discussing the outlook. The general impression is that things look pretty hopeless. Messrs. Reynolds and Ebblewhite, the official timekeepers, have another "smoke" while waiting for a decision. People are beginning to wonder whether it will be possible to hold the race tomorrow instead, but many maintain that the arrangements cannot be made in time, and that, if the race is postponed, it must be for at least another week. Others think it might be done, and the talk turns to the prospects of obtaining rooms in already overcrowded Bournemouth. With all these speculations, time passes, and it is getting on for 5 o'clock. Many have now given up hope, and are getting ready to leave the Pier. Then, quite suddenly, the fog can be seen to drift, and in a short time one finds that Hengistbury Head is visible, and there is blue sky overhead. Swanage Bay is still shrouded in mist, but the fog is undoubtedly rolling inland. So far as can be gathered, the "authorities" on board the *Ombra* are trying to reach a decision



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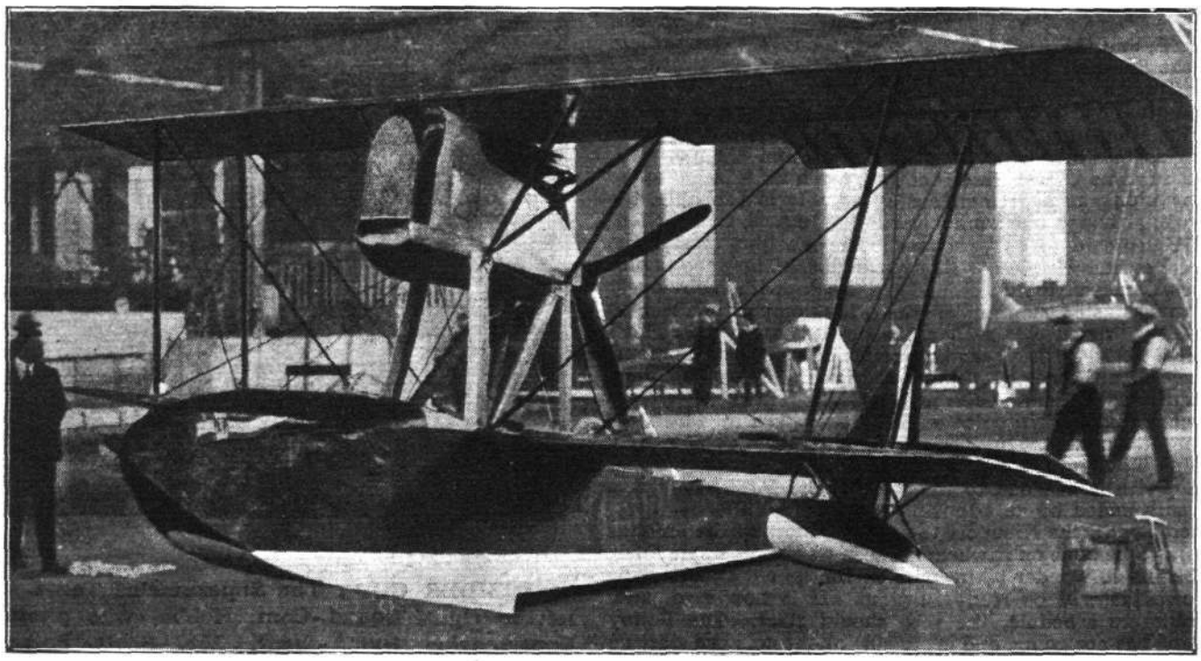
SCHNEIDER CUP : Before the start. The Supermarine "Sea Lion" at her moorings.



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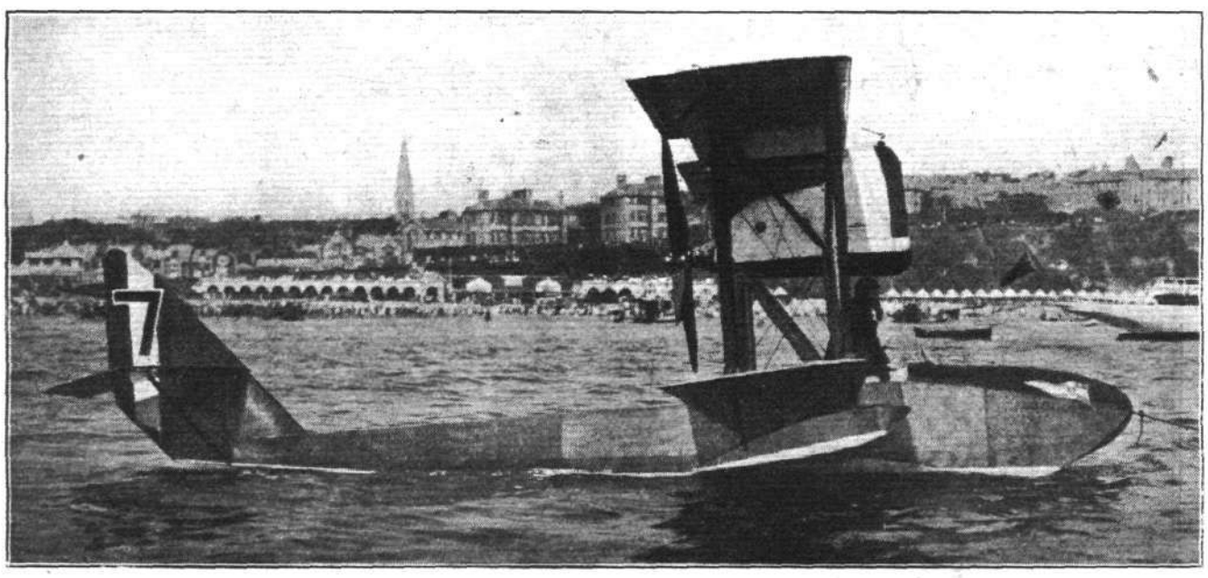
SCHNEIDER CUP : The Savoia flying-boat at the Saunders sheds at Cowes on the day before the race.

as to whether or not to make a start. Presently, word goes round that a start will be made. Many are of the opinion that it is not really fit for flying. However, it is now decided that the start is to be made. It is rumoured that the two French entrants—the Spad and Nieuport—have, under the impression that the start has been postponed until six, been repairing their floats, and will not now be able to get them in shape with such short notice. In the Club enclosure there is some doubt as to whether or not those on the yacht are aware of this. However, there is no time for speculation. Some of the engines have been started, and on a motor launch in front of the yacht the starter's red flag can be seen. The Fairey seaplane, which as it is numbered one is due to start first, is cruising about just East of the starting line. It gets into position, and about 10 minutes to 5 the red flag drops and the Fairey is away. According to numbering, the Nieuport is next, but it is not ready. Hawker should follow, but he is still sitting on the beach, and has not even started his engine. Some say he has refused to start until the last moment, as he is afraid his sparking plugs will soot up if he has to cruise around with the engine throttled down. Others maintain that his floats are leaking, and that if he has to wait any time he will fill up. Nobody knows for certain what is actually going on, but the Supermarine flying boat is on the starting line and is allowed to take off as second, apparently without any flag dropping. In the meantime, the Sopwith has got her engine going, and she and the Savoia are getting ready. It is now clear to everybody that the two French machines are non-starters. The Sopwith gets into position, but the starter appears undecided. The red flag is raised, but is lowered again in an apparently undecided fashion. It then looks as if Hawker gets impatient and comes to the conclusion that if the starters cannot make up their mind he will do it for them, and away he roars. Shortly afterwards the only remaining machine, the Savoia flying boat, is "sitting" in position, waiting for the flag to drop. This it does, and then—not until then—Janello gives his engine full throttle and gets away. "The most fair start of the lot," one hears someone say.

As it will now be some little time before the first machine passes on its first lap, there is time to discuss the start. There is not the slightest doubt that the general impression in the



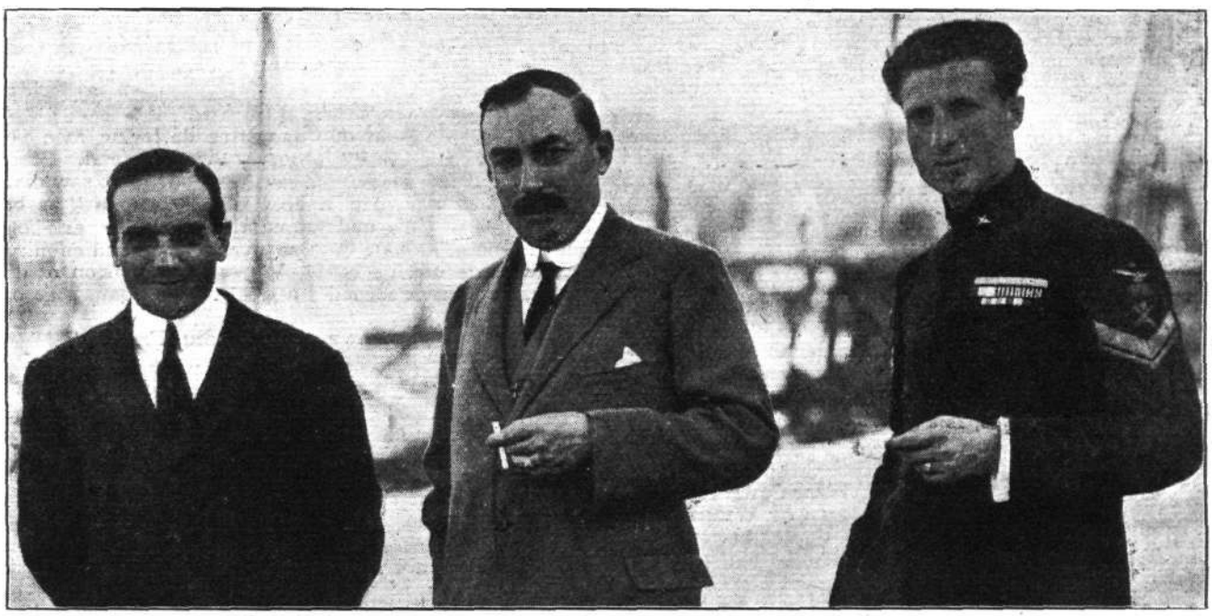
"Flight" Copyright.

SCHNEIDER CUP : The Savoia flying-boat. Sr. Janello was disqualified, as he was not seen from the Swanage Bay mark boat.

Club enclosure is that the start has been badly bungled. Most are of the opinion that the only way to have started the machines would have been, having given reasonable intimation of the start of the race to the competitors, to consider the start of the Fairey as the official time, and then to have dropped the flag at minute intervals after that, irrespective of whether or not the machine in question was ready. If it were not—well, then the delay should be counted against it as flying time. To this it might be objected that it is difficult to get a seaplane into position and keep it there in readiness for the flag. While this is admitted, the conditions are alike for all, and if the mode of starting indicated was known beforehand, it would be up to competitors to so design their machines that they would steer and generally handle easily on the sea. The discussion of this point was getting quite heated when it was cut short by a machine appearing overhead, apparently coming from somewhere inland. It proved to be the Fairey, which lost no time in getting on to the sea. Evidently, he had "chucked it," as one onlooker put it. A few minutes afterwards the Sopwith appeared coming straight in from the sea. After circling around for a few minutes, the engine spluttering as if missing or running throttled down, Hawker opened out again, and it was thought that his engine had been missing, but had picked up again. However, in a few more minutes he also made a landing.

over the Pier. A Sopwith Snipe went through a series of evolutions, and then disappeared again. A Sopwith triplane, carrying no identification marks of any kind, also came over and proceeded along the beach, immediately above the crowds of spectators. One hesitated to stop to think what would happen in case of engine failure. A Westland Limousine appeared from inland, and circled around the two warships lying at anchor.. Its altitude varied from about 50 ft. to 150 ft. It was difficult quickly to think what prompted a pilot to take passengers out to sea in an enclosed land machine at such a ridiculously low altitude. During the Savoia's flight, an old F.E. came along, and appeared to take a "seat" some 500 ft. above Hengistbury Head, where she kept sitting, looking for all the world like an old hen frightened to death because her brood of ducklings has taken to the water. The Avro racer also took a hand, making several circuits of the course at a good speed, *hors de concours*, of course.

It was now clear that the "Race" had turned into a one-man show, and those wearied spectators who had not already left, began to take an interest in Janello, who stuck to it like a sportsman, lapping consistently in the neighbourhood of 10 minutes, sometimes a little more and sometimes a little less. The question now was whether or not he would be able to finish before dark. Finally, his last lap was completed, the onlookers appreciating the plucky way in which he had



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SCHNEIDER CUP : The Italian representatives. From left to right : R. Conflenti, the designer of the Savoia ; in the centre Mr. Lawrence Santoni, the constructor of the Savoia, and, on the right, Sr. Janello, the pilot.

Obviously, he and Lieut.-Col. Vincent Nicholl had found the weather too thick in Swanage Bay.

There were still no signs of the Supermarine, which should really, as it started second, be making its two landings by then. The Savoia was, however, seen to make a landing near Boscombe Pier, as prescribed for the first lap. It got off again and approached Bournemouth Pier, touching the sea again before reaching the Pier. Evidently, Janello was not quite certain whether, as he saw the Fairey and Sopwith down, the race had been abandoned or not. And small blame to him. On the Pier nobody seemed quite certain on this point, and even on the yacht the officials were, it was stated, in heated argument. However, the upshot was that someone, one does not know who, waved Janello on, and once more the Savoia took the air. We began to look for the Supermarine, but for a time nothing was seen of it. Then, suddenly, someone discovered it somewhere between Boscombe Pier and Hengistbury Head. The machine was seen to touch the sea, a faint white streak indicating a normal landing. Then, suddenly, the machine was seen to turn on its nose, the tail swinging into the air and going slightly past the vertical. In this position it stuck, and grave anxiety was felt for the safety of Commander Hobbs. However, motor launches were soon on the spot, and one could only hope that the pilot had been able to extricate himself, in which case he should be safe as he was wearing a floating suit.

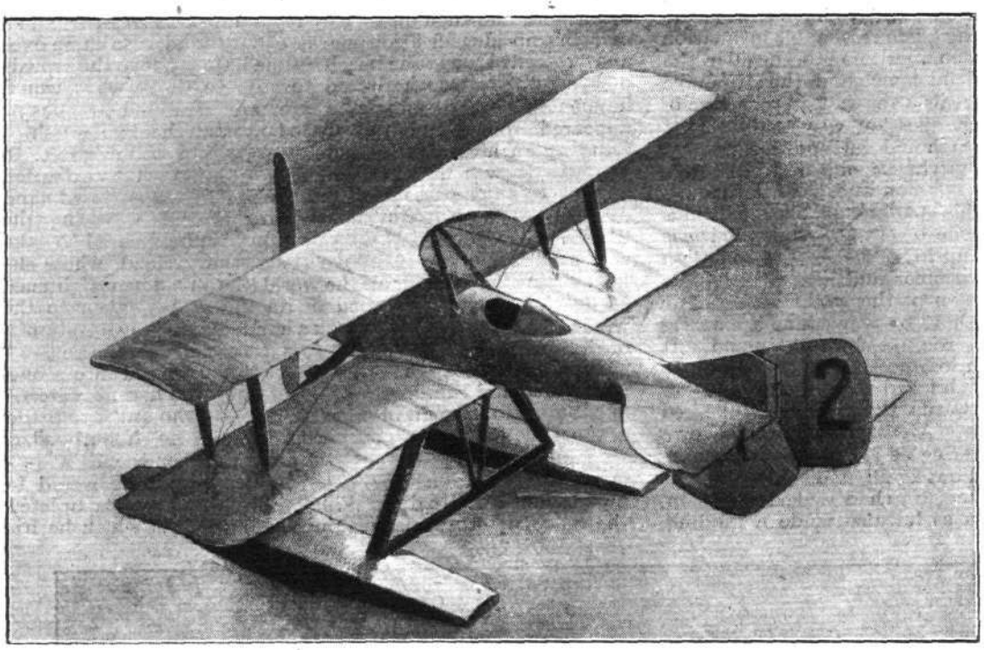
By this time several aerial visitors had made an appearance

gone through with the job. Naturally, everybody concluded that as his laps were so consistent, he had rounded the mark boats in good order. Then came disillusion. From the mark boat in Swanage Bay came word that they had seen no signs of the Savoia.

That the Italian had been rounding a boat is fairly certain from the regularity with which he reached "home" each lap, but it now seems that he must have been passing the wrong boat.

The disappointment was keen, as all had been of the opinion that Janello thoroughly deserved the Cup and Prize.

It is now announced that the "Race" is declared void. What looked at one time like becoming a very good race has passed through a stage in which everything became chaos and a fiasco. I have had a talk with some of the people concerned, and the views and opinions expressed are naturally somewhat contradictory. However, the impression which prevails is undoubtedly that the whole thing was mismanaged, although it must be admitted that the fog, which in the first place caused the race to be postponed, was mainly responsible for the confusion. There is also general regret with the way in which the French competitors are alleged to have been left to get out of their difficulties without any semblance of help, and, in addition, the start itself, which, in the opinion of many, including a number of pilots, should never have been made under the weather conditions prevailing, was sadly bungled.



Schneider Cup: A view of the Nieuport sea-plane.

"Flight" Copyright.

In connection with the Schneider Cup Contest we have received the following communications:—

Re **SCHNEIDER CUP RACE**

SIR,—We beg to thank you for your kind notice of our flying in the race for the Schneider Cup yesterday.

After our pilot had won the race, having complied with every rule and condition, the race was declared void for reasons which you will gather from the enclosed letter which we have written to the Committee of the Royal Aero Club, protesting against their decision to disqualify our machine.

SOCIETA IDROVOLANTI ALTA ITALIA,
D. LORENZO SANTONI, *President.*

Gloster Hotel, West Cowes, Isle of Wight.
September 11, 1919.

(Enclosure,)

GLOSTER HOTEL, WEST COWES,
ISLE OF WIGHT.
September 11, 1919.

The Committee, Royal Aero Club,
3, Clifford Street, W.

Re Schneider Cup Race.

GENTLEMEN,—We confirm our telegram of even date herewith as follows:—"Schneider Cup please note we appeal against the decision of Committee declaring race void on account of Mark-boat observe Swanage end. Statement that he did not see Savoia machine, our pilot saw distinctly at that end of course, a boat with same mark as boat at Christchurch. We understand that a third mark-boat was on the course and we request investigation and enquiry as to whereabouts of this boat. We request revision of decision against which we formally appeal to the Committee of Aero Club.

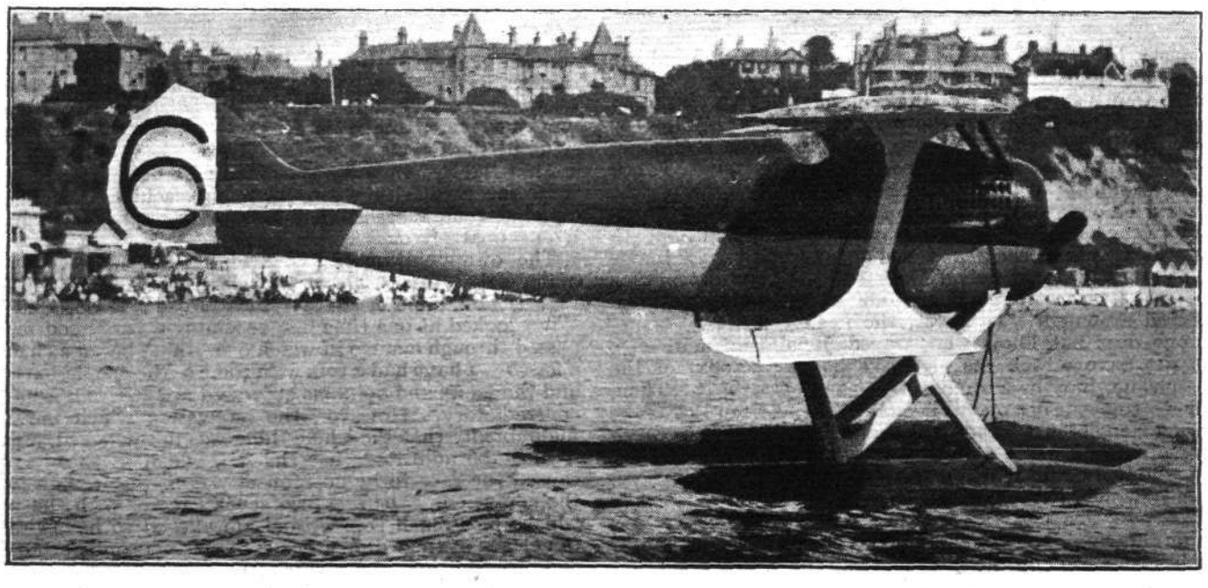
D. LAWRENCE SANTONI, *President,*
Societa Idrovolanti Alta Italia.

We beg formally to appeal against the decision of the Race Committee declaring the race void and disqualifying Savoia seaplane on the statement that the observer on the mark-boat situated at the Swanage end of the course, that he had not observed our machine.

We appeal on the following grounds and we demand an enquiry into the facts mentioned below:—

1. Our pilot made the circuit 11 times complete. On each circuit he distinctly recognised the mark-boat with the red and white sign at the Swanage end of the course, exactly similar to the boat situated at the Christchurch end.

2. Observation from below may have been obscured by the mist.



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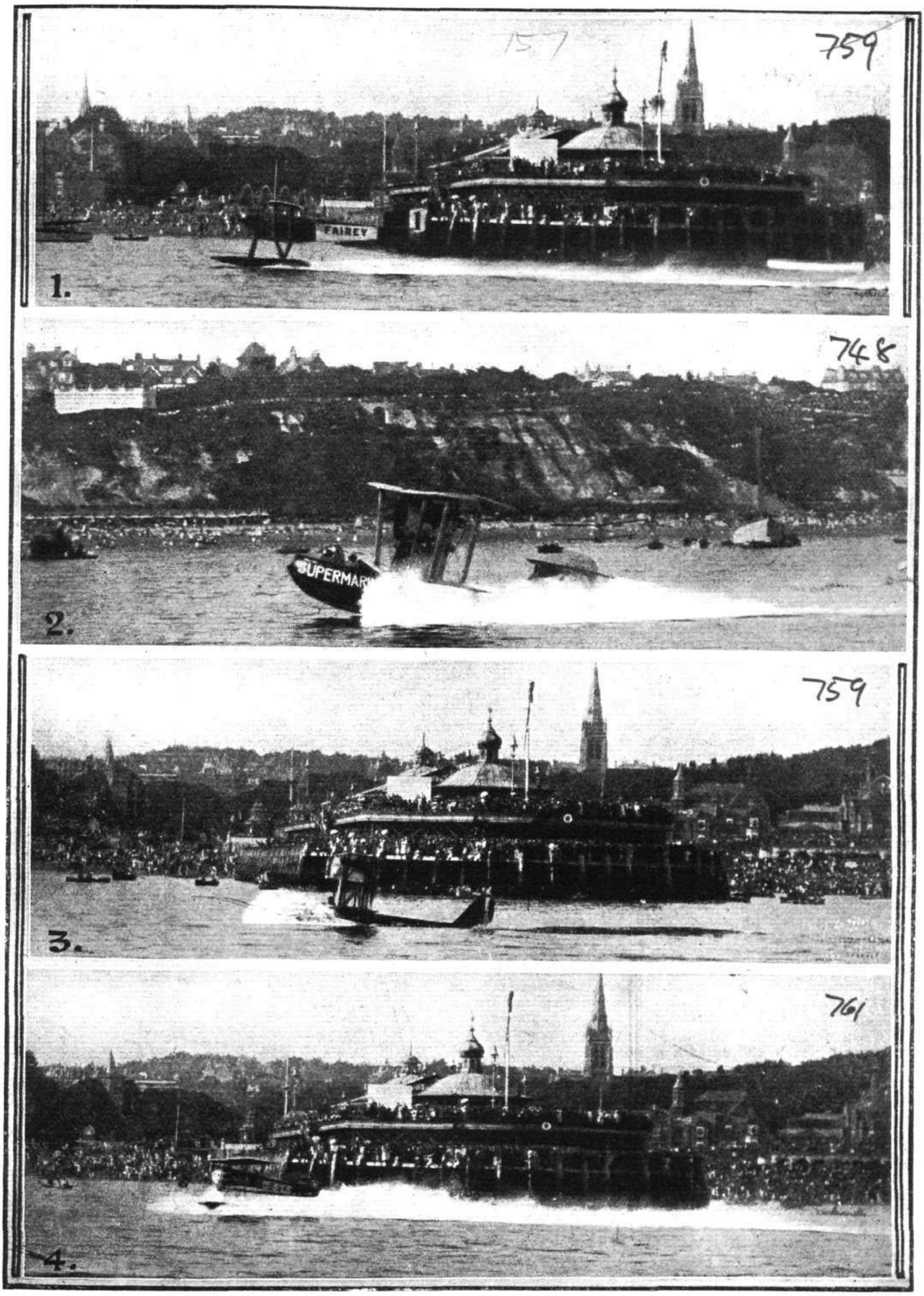
SCHNEIDER CUP: The Spad at anchor. This machine looks very business-like, and should have put up a good performance but for a leaky float. The top plane is swept back, and is of shorter span than the bottom one.



"Flight" Copyright.

THE START FOR THE SCHNEIDER CUP RACE : 1, The Fairey seaplane getting away. 2, The Supermarine flying-boat. 3, The Savoia flying-boat. 4, The Sopwith seaplane.

"Flight" Copyright.

SCHNEIDER CUP : The French team. The Spad pilot, M. Lecointe, and the Nieuport pilot, M. Casale.

3. We have been informed that there were three mark-boats and as our pilot distinctly saw, during the whole of the race, at the Swanage end a boat exactly similar to that at Christchurch with the same marks, he evidently took this boat as the turning point, and if this is the case, the error is due entirely to bad organisation on the part of the arrangement of the committee for which we are naturally not responsible.

We also protest against the manner in which the race was managed and against the absence of proper indication to the pilots of the change in the time and in the order of starting.

The rules hereon laid down by the Committee were not adhered to. Proper and definite notice of such change was not intimated to our pilot, who received his information from a source outside the official one. No proper and effective provision was made to enable the mechanics attached to the foreign seaplanes to approach their respective pilots, in order to supply them with petrol or to enquire as to their wants. Nevertheless, we had been assured by the Secretary of the Club that a special motor boat would be at the service of each competitor at Bournemouth in order to bring mechanics and petrol, etc., to the pilots.

We say we complied with all the rules and conditions of the race, our pilot having as a precaution completed more than the 200 miles prescribed by the rules, and we claim to have won the cup and the pilot's prize, and we request you to revise the decision of the Race Committee and to make a searching enquiry into the points above mentioned.

We are, Gentlemen,

FOR THE SOCIETA IDROVOLANTI ALTA ITALIA,
D. LORENZO SANTONI, *President.*

SIR,—Owing to the number of conflicting reports which have been circulated regarding this race held on Wednesday last, I have made careful examination to ascertain the cause of the British competitors, and particularly the two fitted with 450-h.p. Napier aero engines, not completing even one lap of the course.

I understand that the trouble was due to the bad visibility in the neighbourhood of the Swanage mark-boat, which the competitors had to circle, and which could not be found by any of them.

The Supermarine Flying Boat, which was fitted with a 450-h.p. Napier aero engine, ran into a mist over Swanage Bay; the pilot lost his bearings and made a landing in Swanage Bay in order to ascertain his position. Upon taking off, the machine hit some wreckage, and the pilot did not know the extent of the damage until landing near Boscombe, where he tried to beach his machine.

It is regrettable in the interests of aviation generally, and particularly British aviation, that this race was allowed to commence without ascertaining the extent of the mist over the whole course, and thus turned the race, which should have been of great assistance to aviation, into a fiasco, which might do incalculable harm to the progress of the British seaplane industry.

I understand that both Napier engines were running perfectly in the British machines when on their trials.

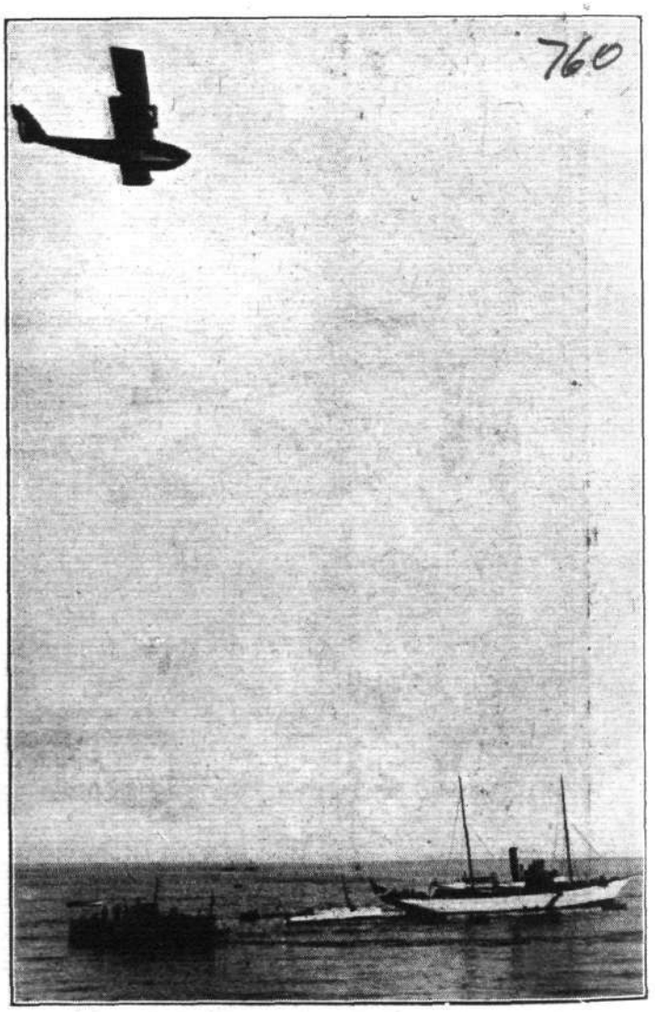
H. T. VANE, *Managing Director,*
D. NAPIER AND SON, LTD.

14, New Burlington Street, W.
September 13, 1919.

SIR,—In regard to the "race" for the Jacques Schneider Cup, I should like to state clearly exactly what happened to our machine, which was as follows :—

Com. Hobbs, as soon as he approached Swanage Bay, ran into a fog the same as the other machines, and it was so dense that it was quite impossible to see anything at all except for a few yards round the machine. Almost before he realised the conditions he got a momentary sight of the Fairey machine, and only by great good luck succeeded in avoiding colliding with it. He then thought that possibly the fog might be less dense close to the sea, and accordingly descended right down to the surface, where, however, he found the conditions just as bad.

Realising that he must be somewhere in the vicinity of Swanage Bay and the danger of running into the cliffs, and having quite lost his sense of direction in the fog, he decided to land and so give himself the opportunity of trying to work out his position, which, of course, was extremely difficult to do whilst flying in the fog at something like 120 knots.



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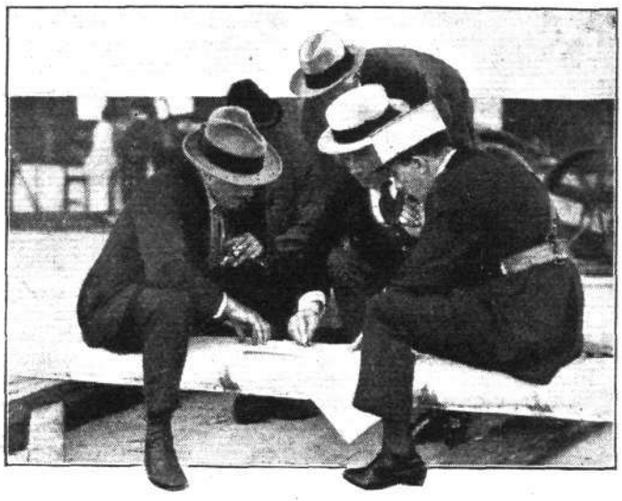
SCHNEIDER CUP : Avanti Savoia. A snap of the Italian representative passing between the pier and the committee yacht on his fourth lap.

Having landed and tried to locate himself without success, he decided to take off and return in the direction of Bournemouth in order to get out of the fog and then make a fresh attempt to find the Swanage mark boat. Unfortunately, in taking off in the fog, just at the moment of leaving the water, he felt a terrific crash caused by striking some unseen object. From a flying point of view his machine was not damaged, but he could not see exactly what had happened to the hull, and decided to continue his previous plan of clearing out of the fog, and continuing the race at a greater height. This he did, but never actually saw the Swanage mark, though from the position of the Purbeck Hills he was able to satisfy himself that he had at least gone inside the mark. From there he proceeded to Hengistbury Head, by means of his compass course, which was clear of the fog, and after rounding made his first alighting to the east of Boscombe Pier alongside the M.L. acting as a mark.



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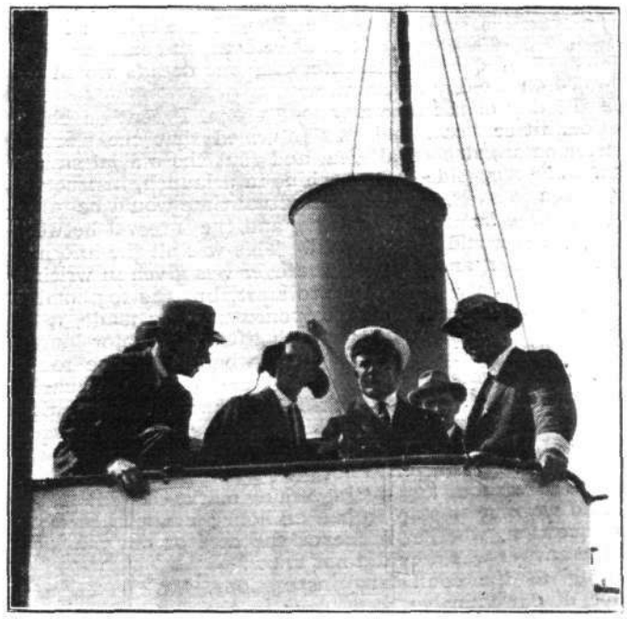
SCHNEIDER CUP : Planning the campaign. Two of the French pilots, Lecointe on the left and Casale on the right, studying a chart of Bournemouth Bay at Cowes the day before the race.

His landing was a perfect one, but the hole in the bottom of the machine was, unfortunately, so large that she immediately filled with water, and although every effort was made to beach the machine she filled before this could be done, and turned half over with her tail standing in the air.

The M.L. picked up Hobbs, and Mr. Scott-Paine and myself arrived shortly after with a launch, and were able to secure the tail of the machine just before she sank. We then towed her into shallow water, where with the help of rigging-up



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SCHNEIDER CUP : On board the "Ombra." Left to right, Mr. T. O. M. Sopwith, Mr. H. G. Hawker, A.F.C., Com. Perrin, and Lieut.-Col. F. K. McClean discussing matters.

tackle, etc., to Boscombe Pier, we were able to complete salvage and bring the machine back to the works.

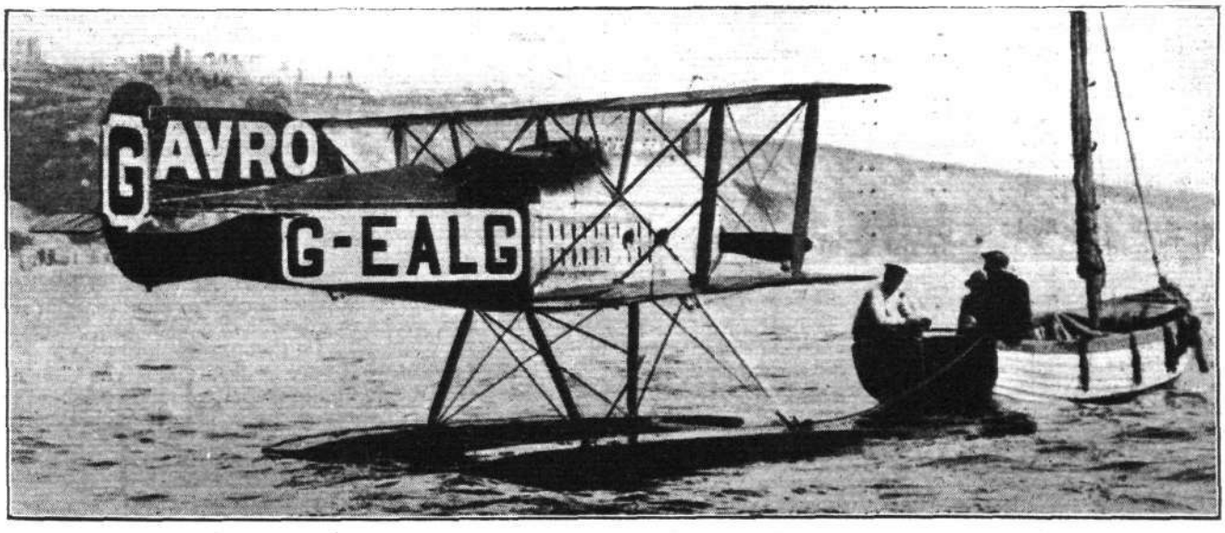
This explains exactly what happened, and in regard to the landing being east of Boscombe Pier, this is explained by the fact that the two landings had to be made alongside two boats acting as mark boats; the first of which was stationed well east of Boscombe, so that Hobbs's landing was in exactly the correct place.

I believe it had at some time been mentioned that the landings were to be between the two piers, but after further consideration it was decided that probably some of the machines could not pull up and take off twice in the limited distance.

I should now like to make a few remarks regarding the organisation generally.

Of organisation, as we know it, there was, as must have been seen, absolutely nil.

I may mention that when I was at Cowes on the previous Monday after our tests with the Avro machine had been carried out, I was given by Com. Perrin typed instructions for the race at Bournemouth, and the only statement regarding starting was as follows: "Each competitor will be given the official order to start by the official starter, when



"Auto." Copyright.

HORS DE CONCOURS : The Avro seaplane was not allowed to start in the race, but Capt. Hamersley brought her down and went round the course a few times by way of a demonstration.

his starting time for the race will be taken." On asking how the starting signal would be given, I was informed that it would be given from the Committee boat, and each machine would start at one minute intervals, but details would be explained on the day of the race.

On the day of the race at about 1 p.m. I went on board the Committee boat, and was informed that the starting arrangements had been altered, and that the official starter would come alongside each machine in a launch, instructing them when to start, and that his actual time would be taken from the time he crossed the line, and the interval between the machines would be increased. This was all the information I could get, and nothing whatever was given in writing.

At 2.30 p.m. we were ready to start, but the fog coming down over Bournemouth a postponement was made, after some time the fog at Bournemouth lifting, a motor launch with no distinguishing marks on it whatever, came round and somebody shouted to me that we were to start in a quarter of an hour's time. On my asking whether this meant that the race would start or our machine would start in a quarter of an hour, the only answer I could get was a shrug of the shoulders. This launch had not gone a minute before another launch also without any distinguishing marks came alongside and said we were to start in half an hour; again I asked the same question, whether it meant the race or our machine, and the answer was they did not know.

Owing to the conflicting instructions, Mr. Scott-Paine, in one of our launches, went over to the Committee boat, and shortly returned with the information that all starting arrangements had again been altered, and that as far as he could gather the new procedure was to be as follows:—

Five minutes before the start of the first machine, a red flag was to be raised, after 4 mins. 45 secs. it would be dipped, and at the end of the five minutes would be raised again, thus giving the signal to start; this was to be repeated for each machine.

Naturally, I expected that this signal would be given from the Committee boat; but actually, as I subsequently found out, it was given from a motor launch with the official starter on board. As far as Hobbs was concerned, he saw nothing whatever of any of the red flags, and it was only through Mr. Scott-Paine being alongside the starting launch in his own launch, and obtaining from them permission to start, and his then waving his cap to Hobbs indicating that he could come, that any start was made by us at all.

Incidentally, Mr. Scott-Paine tells me that the start was just as complete a fiasco for the other machines as it was for us; the Fairey apparently started when the red flag first went up instead of waiting for his five minute flag, and owing to the second and third machines not being there, and the Sopwith not being up to time, we were sent off at some odd time as a result of Mr. Scott-Paine asking the starter whether we might go.

Now to come to another point, viz., the discourtesy to the foreign machines. Whether the Committee had or had not made any arrangements to look after them I do not know; what I do know is that on their arrival at Bournemouth they were simply left to drift about without having anybody moving a hand to help them. Seeing the S.P.A.D. just on the point of drifting on to a boat at anchor, I got hold of him and secured a boat which I got to tow him, and make him fast to one of our own moorings. After this I was unable to do anything more, as Hobbs had just arrived, but I went over to the Committee boat and informed them of what was happening, and you can judge my surprise when I was informed by one of the Committee that it was nothing to do with him.

[After making some very strong remarks in regard to starting the race at all under the conditions, Com. Bird continues:]

I myself and Com. Hobbs had both warned members of the Committee early in the day that the mark boat at Swanage could not be seen, and that the fog in that locality was very dangerous, and furthermore, Mr. Scott-Paine, when the instructions for the race were given, strongly protested that conditions were unsafe, and that from our long experience of flying and sailing in the locality, we all knew that there was no chance of the fog lifting under the weather conditions prevailing.

JAMES BIRD.

The Supermarine Aviation Works, Ltd.
Southampton, September 15.

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Aerodromes for Civil Use

THE following lists of aerodromes are issued as an addition to the lists recently published. It may be seen that in the majority of cases the aerodromes referred to below can only be considered as possible emergency landing grounds.

Attention is again drawn to the fact that these lists are purely provisional and subject to alteration or amendment from time to time.

LIST D (*c*).—*Aerodromes licenced as suitable for "Avro (504 K) and similar types of aircraft" only. Except in very few instances accommodation does not exist. The licences have also been issued for limited periods only.*

Aerodrome.	Nearest railway station.	Nearest town.
Aylesbury (Race Meadow)	Aylesbury ..	.. Aylesbury.
Conway (The Morfa)	Conway ..	.. Conway.
Ashgate (Caushouse Farm)	Chesterfield	.. Chesterfield.
Leicester (Aylestone Lane)	Leicester ..	.. Leicester.
Derby (Race Course)	Derby ..	.. Derby.
Marden	Cullercoats	.. Newcastle-on-Tyne.
Stratford-on-Avon..	Stratford-on-Avon	Stratford-on-Avon.
Lochee Park ..	Dundee ..	.. Dundee.
Perth (North Inch)	Perth ..	.. Perth.
Warrington ..	Warrington	.. Warrington.
Stoke-on-Trent (Sparrow Terrace)	Stoke-on-Trent	.. Stoke-on-Trent.

LIST E (*a*).—*Stations no longer in use by the R.A.F.*

These stations have been passed to the Government Surplus Property Disposal Board. They will be relinquished as soon as the Government property thereon has been disposed of. In many cases the aerodromes are now under cultivation, but it is probable that the sites still form the best emergency landing grounds in the immediate neighbourhood.

Aerodrome.	Nearest railway station.	Nearest town.
Hickling Broad (s)	Catfield ..	.. Yarmouth.
Killingholme ..	Habrough	.. Grimsby.
London Colney ..	Radlett ..	.. St. Albans.
Shoreham	Shoreham	.. Shoreham-by-Sea.
Seaton Carew ..	Seaton Carew	.. West Hartlepool.

References: (s) Seaplane station. (c) Known to be under cultivation or otherwise unsuitable for landing.

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Relinquishment of R.A.F. Stations

IT has been decided to relinquish and dispose of the following R.A.F. stations, and arrangements are being made accordingly:—

Wight, Cowes (aerodrome), London Colney (aerodrome), Beaulieu (aerodrome), Lydd (Balloon School), Dover (seaplane station; temporarily transferred to Admiralty).

International Air Convention Approved

THE Air Ministry announce that the Convention relating to International Air Navigation was formally approved, subject to one or two minor reservations, by the Supreme Council of the Peace Conference, at a meeting held at St. Germains immediately after the signature of the Peace Treaty with Austria on September 10.

This document, which is one of the most interesting of the agreements made by the Powers taking part in the Peace Conference, is very comprehensive, and deals amongst other things with such subjects as sovereignty of the air, space above territory and territorial waters, international air law, nationality of aircraft, certificates of airworthiness, conditions of admission of air navigation above foreign territory, rules to be observed on departure, on landing and when under way, prohibited articles and the institution of an international commission for air navigation.

There was little or no precedent to guide the delegates in the framing of the Convention, and in its drafting it was essential that our Dominions, our Allies and as many as possible of the neutral States should participate. To secure agreement in 11 weeks as was done on a subject affecting so many different interests is no mean achievement.

The signatories to what may be regarded as the Charter for Civil Aviation throughout the world are as follows:—United States, Great Britain, France, Italy, Japan, Belgium, Brazil, Cuba, Greece, Portugal, Rumania, Serbia.

R.A.F. Pigeons to be Demobilised

IT is announced that the Air Ministry had decided to dispense with the R.A.F. pigeon service which, during the War, did splendid service in bringing assistance to stranded pilots. We believe that all the pigeons used during the War were presented by fanciers to the Government.

FLIGHT

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

SPECIAL COMMITTEE MEETING

A SPECIAL MEETING of The Committee was held on Friday, September 5, 1919, when there were present :—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair, Lieut.-Col. Spenser D. A. Grey, D.S.O., Mr. F. Handley Page and Mr. Harold E. Perrin, Secretary.

Honorary Membership.—The following were elected Honorary Members of the Club :—

Lieut.-Col. James E. Chaney (U.S. Air Service).
Capt. Harold M. McClelland (U.S. Air Service).

THE FLYING SERVICES FUND

A MEETING of the Flying Services Fund Committee was held on Friday, September 12, 1919, when there were present :—Group Capt. C. R. Samson, C.M.G., D.S.O., R.A.F., in the Chair, Mr. Chester Fox, Squadron Leader T. O'B. Hubbard, M.C., R.A.F. and Mr. Harold E. Perrin, Secretary.

Grants and Allowances.—The following Grants and Allowances were made :—

(32) A Grant of £5 to the widow of an ex-1st Class Air Mechanic in the Royal Flying Corps who died as result of exposure whilst on active service.

(40) An allowance of £2 a month for six months to the widow of a Sergeant in the Royal Flying Corps killed on active service.

(70) An allowance of £1 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Flying Corps who died on active service.

(91) An allowance of £4 a month for six months to the widow of a Sergeant in the Royal Flying Corps killed on active service.

(109) An allowance of £2 a month for six months to the widow of a Private in the Royal Flying Corps who died on active service.

(118) An allowance of £4 a month for three months to the mother of a 3rd Class Air Mechanic in the Royal Air Force killed on active service.

(126) An allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps who died on active service.

(128) An allowance of £2 a month for six months to the mother of a Sergeant in the Royal Flying Corps killed on active service.

(130) An allowance of £2 a month for six months to the mother of a Private in the Royal Flying Corps who died on active service.

(139) An allowance of £3 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who died on active service.

(146) An allowance of £2 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who died on active service.

(150) A Grant of £5 to the widow of a Private in the Royal Flying Corps killed on active service.

(152) An allowance of £2 a month for three months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps killed on active service.

(155) An allowance of £2 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force killed on active service.

(160) An allowance of £2 a month for six months to the sister of a 3rd Class Air Mechanic in the Royal Naval Air Service killed on active service.

(176) An allowance of £2 a month for six months to the widow of a Driver in the Royal Air Force who died on active service.

(208) An allowance of £4 a month for six months to the mother of a Cadet in the Royal Air Force who died on active service.

(228) An allowance of £3 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Naval Air Service who died on active service.

(244) A Grant of £10 and an allowance of £1 a month for six months to the widow of a Corporal in the Royal Air Force who died on active service.

(245) An allowance of £1 10s. a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who died on active service.

(246) An allowance of £2 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who died on active service.

(247) An allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Air Force who died on active service.

(248) An allowance of £4 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Air Force who died on active service.

(249) An allowance of £2 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Air Force who died on active service.

(250) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who died on active service.

(257) An allowance of £1 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who died on active service.

(260) An allowance of £2 a month for six months to the mother of a 1st Class Air Mechanic in the Royal Air Force who died on active service.

THE FLYING SERVICES FUND

(Registered under the War Charities Act, 1916)

Administered by the Royal Aero Club

For the benefit of *Officers, Non-Commissioned Officers and Men* of the ROYAL AIR FORCE who are incapacitated while on duty, and for the widows and dependants of those who are killed or die from injuries or illness contracted while on duty.

Honorary Treasurer:
The Right Hon. LORD KINNAIRD.

Committee:
H.R.H. PRINCE ALBERT, K.G. (*Chairman*).
Mr. CHESTER FOX.
Squad. Leader T. O'B. HUBBARD, M.C., R.A.F.
Wing Commander C. E. MAUDE, R.A.F.
Group Capt. C. R. SAMSON, C.M.G., D.S.O., R.A.F.

Secretary:
H. E. PERRIN.

Bankers:
Messrs. BARCLAYS BANK, LTD., 4, Pall Mall East, London, S.W. 1.

Subscriptions:	£	s.	d.
Total subscriptions received to Sept. 9, 1919 ..	15,119	19	1
Squadron Leader P. Litherland Teed, R.A.F...	1	10	0
Squadron Leader P. Litherland Teed, R.A.F. (Second contribution)	3	3	0
Total, September 16, 1919	15,124	12	1

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

R.A.F. Cadet College

A LIMITED number of cadetships at the R.A.F. Cadet College will shortly be open to competition, and will be awarded to candidates who fulfil certain conditions laid down by the Air Ministry. Particulars may be obtained on application to the Secretary, Air Ministry, Kingsway, London, W.C. 2. A candidate who fulfils all the necessary conditions may compete for a cadetship at the R.A.F. Cadet College, and also for a cadetship at the Royal Military Academy or Royal Military College. Candidates desiring to do this must express definitely their order of preference before the examination begins. A candidate may say that if he is not among the first (so many) successful competitors for the Royal Military Academy or Royal Military College (as the case may be) he will elect for a cadetship at the R.A.F. Cadet College. Cases may, however, arise in which it would not be possible to give effect to such conditional preference.

COMMERCIAL AIR-TRANSPORT

BLACKPOOL, ETC.

THE Avro Northern Stations, of which Blackpool is the parent, including Southport, Manchester, Fleetwood, Morecambe, Waterloo Sands (Liverpool), Rhyl, Douglas and Windermere, have now taken up 20,000 passengers, a most remarkable figure. Preston has been licensed, and it is hoped that active operations will soon be undertaken there.

A "travelling circus" has now been established, which will tour various towns in turn, spending a few days at each, to give demonstrations and take up passengers. The dates arranged so far are :—

Barmouth	September 15 to 20.
Nottingham	September 22 to 24.
Derby	October 6 to 11.

BOURNEMOUTH AND THE ISLE OF WIGHT

AT the Bournemouth aerodrome there were busy days last week. On Wednesday about 30 machines landed there and on Saturday a party of 250 members of the British Association paid a visit, many being taken up on the Avro and F.E. machines and the Westland Limousine. On the other days passenger flights were in great demand and school work proceeded as usual.

With the turn of the fine weather during the past week the Supermarine Flying Boat Service has resumed at Bournemouth and the Isle of Wight. The rough and heavy weather during the preceding fortnight has been all against comfortable flying for passengers, and on the resumption of the calm sea and fine period, many of the visitors availed themselves of sea and coastal flights, also trips over and round H.M. warships lying in Bournemouth Bay.

One machine, on September 12, on the journey from Southampton to Bournemouth, the pilot reported that about 4 miles off Hurst Castle he sighted a mine. Half a mile further on was one of the Government tugs from Yarmouth. The pilot circled his machine, passed low down near the tug, and pointed out to the captain the position of the mine. It was then observed that the course of the tug was altered, and on reaching the mine a boat was put out. Nothing has since been heard of the subsequent proceedings so far as the mine is concerned, as the pilot then headed to continue his journey into Bournemouth.

The Supermarine Flying Boat Passenger Service will be continued on every fine and suitable flying day for passengers, at Bournemouth, Isle of Wight, and Southsea.

BRIGHTON AND CHICHESTER

DURING the week ending September 13, 90 flights were made by the Avros at the Ladies' Mile Aerodrome, Brighton, and 185 passengers were carried.

Two cross-country flights were made to Chichester and return—one return journey was made in 15 minutes. Flying took place there on Thursday afternoon and 20 passengers were taken up ; and, weather permitting, Thursday flying will continue to take place at Chichester.

HOUNSLOW

DURING the week 118 flights were made and 189 passengers were taken up. The total number of passengers taken up by the Avros at Hounslow since May 1 has now passed the figure of 6,400. During the week the following cross-country flights were made :—One to Hythe and back, one to Margate, one to Weston-super-Mare. Two new machines were flown down from Manchester and arrived safely.

Mrs. Atkey, of Chelsea, is learning to fly on an Avro at Hounslow, and made her first instructional flight a day or two ago. It is believed that she is the first lady to undergo a course of training for a pilot's ticket since the end of the War.

MARGATE

THE Avro flights at Manston have numbered 319 last week, and among the many passengers were Miss Currie, the Marquis de Ruvigney, Count de Ruvigney, and Dr. Sauer, all of whom most enthusiastic, taking flights on several days. A blind man waited many hours one day for his flight, determined to loop and experience every flying sensation. The weather has been perfect and everything is going with energy and success on the aerodrome.

PAIGNTON

THREE 3-seater seaplanes were in commission here during the week. There were 174 flights made and 264 passengers were taken up, the trip round the warships anchored in the bay being very popular indeed.

SWANSEA

ALTHOUGH no flying was possible on the 7th, 8th and 9th instants, owing to the weather, three Avros 3-seaters, made 204 flights and took up 244 passengers.

WESTON-SUPER-MARE

CAPT. D. G. WESTGARTH HESLAM is now in charge of the Avro Aerodrome at Weston, and has been flying with great energy and success since he took over. During the past week the one 3-seater at work made 81 flights and took up 161 passengers.

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THE LONDON–PARIS SERVICE

THE third week of the London-Paris service run by Aircraft, Transport and Travel, was successfully completed on Saturday, by which time the Airco machines had flown more than 10,000 miles with passengers and parcels, and with only one 10 mins. delay, due to a forced landing. Out of 42 possible flights 41 had been carried out. On September 12 a special "Airco" express brought Gen. Sykes, Controller-General of Civil Aviation, from Paris to Hounslow in two hours. Gen. Sykes, with Gen. Seely, travelled to Paris on September 9 in an Airco 16, having been called urgently to the French capital in connection with the International Air Convention.

The Handley Page Transport, Ltd., state that during the week ending September 12 40 passengers have been carried, in addition to 1,200 lb. of freight between London and Paris. The average time for the journey has been 3 hours 29 mins. Arrangements are now complete for passengers to be conveyed in private landaulette motor-cars to and from the aerodromes.

On Tuesday a Breguet flew from Paris to London, inaugurating a new service which will alternate with the Handley Page. Thus from London the service will be on Monday Breguet, Tuesday Handley-Page, Wednesday, Breguet, Thursday, Handley Page, Friday, Breguet, Saturday, Handley Page ; while the Paris–London service will be in the reverse order.

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Fast Trip from Amsterdam

A VICKERS-VIMY commercial aeroplane, carrying eight persons, including passengers and crew, arrived at Hounslow from Amsterdam at 4.30 on Monday morning. The journey was made in 2 hours 50 mins. This was an improvement of 10 mins. on the previous time. Luncheon was served on board. Among the passengers were Mr. H. Steensma, chief technical officer of the Dutch Flying Corps, and two engineers of the Royal Dutch Aero-Dynamic Laboratory—Mr. Pigeau and Mr. Grase.

The St. Raphael Station

ST. RAPHAEL (Var) in the south-east of France is becoming quite an important point in the aviation world. It is a station on the British line from London to Bombay, and the French Government has decided to make a station there for passenger and postal services. The French aerodrome will be near the French naval air station and the British ground.

Air Attachés for Italian Embassies

ACCORDING to the *Giornale d'Italia*, the Italian Government has decided to follow the lead of Great Britain and the United States, and send to the capitals of the Great Powers a military attaché especially competent to deal with aviation questions.

From Maggiore to Amsterdam

ANOTHER fine performance by a Savoia seaplane was made on Monday, September 8, when Petty Officer Guarnieri, of the Royal Italian Navy, left Lake Maggiore with Lieut. Campacci, R.I.N., on board one of these machines and made a non-stop flight to Amsterdam. After flying over the Alpine chain of the St. Gothard region, and crossing Switzerland from south to north, Guarnieri followed the Rhine valley.

The Rome to Tokyo Flight

THE preparations being made for Gabriele d'Annunzio's flight from Rome to Tokyo provide for five machines taking part, and the principal points on the route will be Salonica, Adalia, Benares, Calcutta, Mandalay, Hanoi, Canton, Pekin, Fusan, and Osaka. The distance will be about 10,625 miles, and it is estimated that the flight will cost some £200,000.

FLIGHT

"INTER-IMPERIAL COMMUNICATION"

IN the course of an address, before the Economic Section of the British Association, on "Inter-Imperial Communication through Cable, Wireless and Air," Sir Charles Bright said that the welfare of the Empire was likely to be considerably influenced by the position we eventually took up in these matters, whether we were first in the field, and the actual value of the air routes which we controlled. In days to come air stations would be at least as important as coaling stations were now. There could be little doubt that Egypt was admirably situated to become the Clapham Junction of the air.

The ultimate success of inter-Imperial commercial aviation really resolved itself into closely thought-out organisation backed up by no stinting—without actual waste—of the wherewithal to carry things out. Lord Weir had become the chairman of a committee to advise on the main air routes of the British Empire. It would remain for the Air Ministry, in concert with the Foreign Office, to work out the aerial navigation treaties with other countries, prepare the necessary aerodromes, meteorological and wireless stations, and make trial cruises with different types of machines in the various routes.

The air stations—with wireless and meteorological equipment at each, will require to occur at intervals of something like every 500 miles along each of the main air routes of about £50,000 apiece. Emergency landing grounds at smaller intervals, at small cost, and airship sheds at distant intervals would have to be provided for.

Sir Charles Bright then went on to describe in detail the advantages of air travel, over comparatively short distances, from several points of view.

Turning to the subject of air mails and aerograms, he said that while the mail to Australia took over five weeks, an aeroplane of to-day could cover the distance in some 12 days. In those regions, which were practically immune from fog or gale, air mails should have a considerable future, both as entirely outstripping the mail ship over long journeys and as correspondingly beating any telegraph system over comparatively short distances.

The letters and parcels that had been carried in the "Airco" aeroplanes (as manufactured by the Aircraft Manufacturing Co.) between Folkestone and Cologne, went to prove what could be done in this direction under properly organised conditions. The letters could be sorted *en route*, sorting boxes being fitted to the aeroplane. As a matter of fact, all postal work that was done in a train could always be done with equal ease on aircraft.

Great developments would now undoubtedly take place in the transport of correspondence by aeroplanes. The principal problem was really that of reducing the weight of the correspondence to such dimensions as were consistent with economy. Various expedients to this end had been suggested, but if systems of scientific language condensation were employed, a lengthy business communication could easily be transmitted on a sheet of paper the size of an ordinary postcard.

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The Ageing of Duralumin

AN important addition has just been made to the list of papers to be presented at the annual autumn meeting of the Institute of Metals in Sheffield on September 24 and 25. It is a note by an American metallurgical engineer, Dr. Zay Jeffries, of Cleveland, Ohio, on "The Micro-Mechanism of the Ageing of Duralumin," a subject of great interest to all concerned with the working or use of this aluminium alloy. Dr. Jeffries has come over to this country in order to be able to present his communication in person to members of the Institute.

Copies of the note are now in the press, and applications for copies should be made to the Secretary, Institute of Metals, 36, Victoria Street, S.W. 1.

A Flying Club for Cambridge

A SCHEME for the formation of a flying club for undergraduates and others in the University has been drawn up by the Cambridge School of Flying. It is proposed that one machine should be set apart for the use of members of the club and that the subscription of 15 guineas per term would cover a series of eight 15-minute flights. Those interested can obtain particulars from the Secretary, 2, Downing St., Cambridge.

Propeller Souvenirs

THOSE who want to have a relic of the Great War have still an opportunity to secure a propeller of either the two or four-bladed variety. They are made of the finest walnut and mahogany, and cost originally from £15 to £25 each. They can be adapted for many purposes, such as hat-racks, etc., a finishing touch being given if a barometer or clock is mounted in the centre of the boss. Two-bladed "props" are being sold at 25*s*., while four-bladers cost 30*s*. Enquiries should be addressed to the Controller, Aircraft Disposal Department, York House, Kingsway, W.C.

Commercial Flying in South Africa

FROM South Africa comes word of the projected formation of a syndicate, of which Col. Armes and Maj. Miller, both late of the R.A.F., are the leading spirits, for the development of commercial flying in South Africa.

Three machines have already been landed at Cape Town, and three more are expected before Christmas, and, to begin with, an attempt will be made to run a regular service between Johannesburg and Pretoria. The service is expected to be in full swing by October 1, and a landing place has been selected at Pretoria, close to Roberts Heights.

A Trans-American Competition

THE Aerial League of America has announced that it is organising what is termed a Transcontinental Aerial Derby from New York to San Francisco, with prizes aggregating over $100,000. It is proposed to make it an international event, and the course will probably be divided into sections of about 250 miles each.

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The Lawson "Aerial Transport"

FROM Milwaukee comes word that the Lawson "Aerial Transport," of which a description was given in our last issue on August 22, made a trial flight, lasting some 20 minutes. It came to a conclusion through one of the motors experiencing heating troubles, and the machine landed successfully in a wheat field.

High Climbing in America

WHILE testing a Curtiss triplane, fitted with a 400 h.p. Curtiss engine, at Roosevelt Field, Long Island, on September 13, Roland Rohlfs succeeded in getting up to 34,200 ft. As the performance was not officially observed, it cannot be claimed as a record, but Mr. Rohlfs will endeavour to repeat the performance at the first favourable opportunity. It is stated that at 34,000 ft. Mr. Rohlfs found a temperature of 44 deg. below zero, while at 34,200 ft. the temperature was four degrees higher.

German Round-the-World Trip

THE well-known German pilot Boehm is planning to make a trip round the world in an aeroplane of his own design, which is claimed to be non-capsizable and to combine great speed with low weight. Boehm, it may be remembered, holds the world's duration record, which he established in 1914 on an Albatros biplane with 70 h.p. Mercédès engine, when he stayed in the air for over 24 hours.

An American Mission in Germany

FROM Berlin it is reported that quite recently an American mission went from Berlin to Friedrichshafen in the German commercial airship "Bodensee," in order to discuss the question of commercial airships with the Zeppelin works and to consider the suitability of Zeppelin airships for America.

A German Aeroplane Shot Down

A GERMAN aeroplane which did not carry the prescribed identification marks was fired on by anti-aircraft guns and shot down in Upper Silesia. The pilot, Lieut. Rusch, was killed, as was also the observer, Sergt. Kieske.

First German Air-Chauffeur

THE first German pilot to become an air-chauffeur in the full sense of the word is Herr Brunhuber, who is said to have accepted a position as air-chauffeur of two machines, a Fokker and an Albatros, belonging to two private individuals.

Zeppelins to Sweden

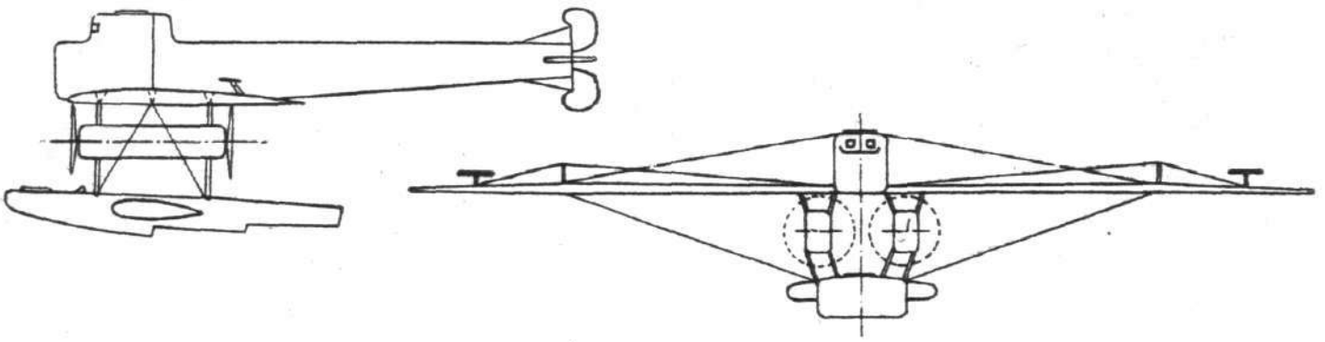
IT has been arranged to open Zeppelin traffic between Berlin and Stockholm, reports the *Morning Post* correspondent at the latter place. The Swedish Air Traffic Co. will co-operate with the Deutsche Luftschiffarts Actiengesellschaft in arranging trips over Swedish territory by the German airship "Bodensee." The route from Berlin will be taken along the Swedish east coast, and the landing will be on the Stockholm training fields. The "Bodensee," which has a carrying capacity of 12,000 kilos., and accommodation for 25 passengers, is arriving shortly on her first trip.

THE (GERMAN) DORNIER "GIANT FLYING-BOAT"

FROM A CORRESPONDENT

IN view of its unusual arrangement, a few notes concerning the Dornier monoplane flying-boat, which was under construction when the Armistice was signed, may not be without interest. The machine was built by the Zeppelin Works at Lindau on Lake Constance, and was designed by the chief designer of that firm, Herr Dornier, who is Swiss by birth. As the accompanying diagrams show, the machine is a mono-plane, and is, in a sense, of the flying-boat type, although it might be better described as a single-float seaplane. An idea of the size of the machine may be formed when it is pointed out that the wing span is 36 m. (118 ft.). The power plant consists of four Maybach motors, each of 260 h.p., driving two tractors and two pushers.

The *fuselage* is placed above the wings, and in it are housed gunners and other crew. The pilots are seated down in the boat, or central float, which also accommodates gunners, one in the nose and one in the stern. In the boat, between the pilots and rear gunner, are placed the petrol tanks, which have a capacity sufficient for a 10 hours' flight. The machine carries a crew of nine, which may be constituted as follows: Two pilots, two gunners in the "hump" on top of the *fuselage*, one wireless operator in the nose of the *fuselage*, two gunners in the boat, and two engineers. With full load the machine has attained a speed of 145 km./hour (about 90 m.p.h.). One of the finest flights made by the Dornier was a non-stop trip from Lake Constance to Norderney, the Naval Air Station in the North Sea.



THE DORNIER MONOPLANE FLYING BOAT: Diagrammatic side and front elevations

With regard to construction, it should be pointed out that there is no wood in the machine, the wings, *fuselage*, boat and engine mountings being made of Duralumin. The Zeppelin firm have also during the War constructed all-Duralumin single-seaters and two-seaters of the twin-float type.

Under a Danube Bridge

A MESSAGE from Pressburg states that the French pilot, Joe Pouliquen, on a Breguet (300 h.p. Renault), accompanied by his mechanic Vallières, has twice recently flown under the bridge which carries the railway from Prague to Budapest across the Danube.

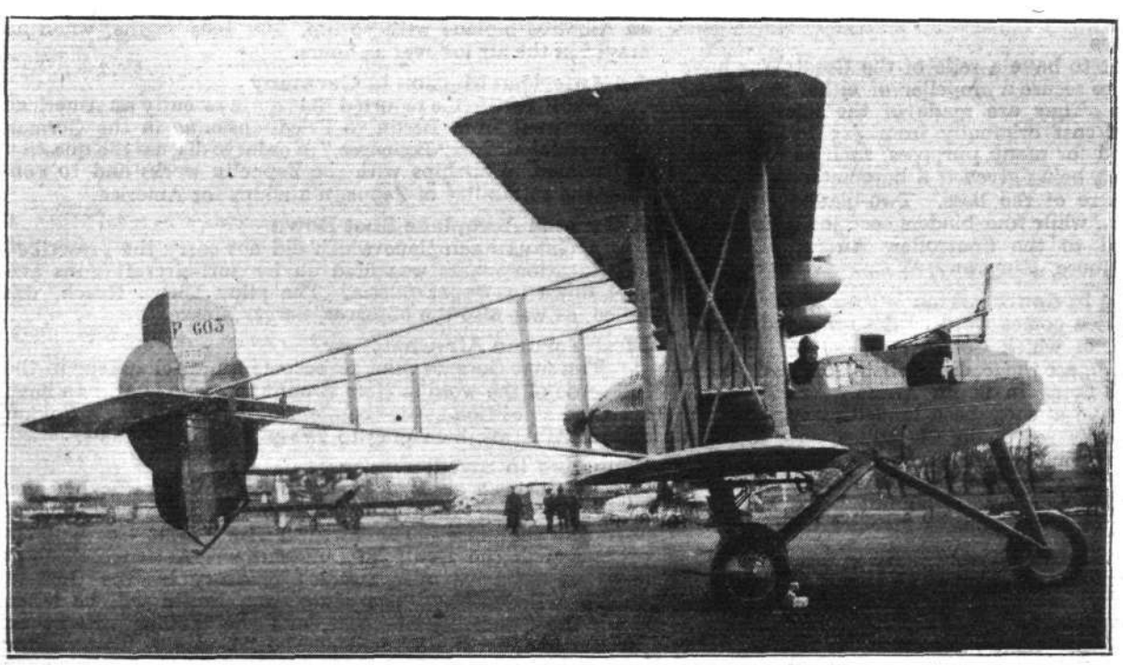
A German Squadron for Russia

FROM a story in the German *Freiheit* (Freedom) it appears that the flying squadron No. 426 went over to the Russian counter-revolutionaries some days ago with its entire material. The squadron remains in communication with the military departments in Germany, whence it receives stores. A dozen men were sent to Berlin recently commissioned to take aeroplanes to Courland.

Italian Airships for South America

"IN the Ciampino, south-east of Rome, a large airship, called the Transatlantic, is nearly completed," says the *Daily Mail* correspondent at Milan. "Its construction is being undertaken with the idea of attempting a crossing from Italy to South America.

"The airship has four motors, giving a speed of 60 miles. I am informed that the first trial flight will take place at the end of the month."



A Breguet pusher biplane flown, during the War, by the Russians on the Roumanian front.

FLIGHT

R 33'S TRIP OVER THE LOW COUNTRIES

THE R 33 returned to Pulham at 6.20 p.m. on September 12, after carrying out a demonstration flight over Holland and the French and Belgian battlefields. R 32 also took part in the demonstration, the two airships flying together over Amsterdam that morning. R 33 carried as passengers a number of prominent business men whose names are as follows: Mr. Sydney A. Boulton, of Lloyds; Mr. J. Dunn; Mr. Benjamin Guinness; Gen. Sir Sefton Brancker, of the Aircraft Manufacturing Co.; and in addition Com. Foakes, R.N., representing the General Post Office; Mr. E. A. Box, Secretary to High Commissioner of Australia; and Brig.-Gen. E. M. Maitland, D.S.O., C.M.G., C.B.E., were also on board. The following is the account of the voyage as issued by the Air Ministry:—

R 33 left Pulham at 9 p.m. on Wednesday evening. R 32 had started an hour earlier. Excellent weather conditions prevailed. After crossing the coast at Lowestoft R 33 set a course towards the mouth of the Thames, proceeding from the North Foreland to the Belgian coast at Ostend. This point was reached at about 4 a.m. Whilst off the North Foreland, R 33 spoke by flashlamp with the battleship *Revenge*, whose captain wished us "Bon Voyage." Shortly before 5 a.m. the coast of Holland was crossed at West Katelle, and The Hague was reached by 6 a.m. About the same time we on R 33 sighted the R 32, which was flying low down on our port side. A signal was sent to her by wireless asking her to keep in company with us as far as Amsterdam. We came upon Amsterdam at 7 a.m., when the city was scarcely astir. Nevertheless those people who were in the streets had a good view of the two ships as they circled around. A message of greeting from R 33 was dropped by R 32 in the centre of the exhibition, and shortly after a handsome welcome to the R 33 was received from Gen. Snyder. The Royal Aero Club of Holland also sent a message of goodwill, to which we were glad to respond. Leaving Amsterdam with some regret, as we had hoped to spend part of the forenoon above the city, we turned southwards over Rotterdam. Arriving at 8.15, a message attached to a loaded streamer addressed to the Mayor was dropped. We hoped that it reached him, but unfortunately the chances were against us as it fell into an open field. It now became apparent that the project of landing in Paris might, as a result of the large amount of water ballast discharged during the night, be a matter of some difficulty, and it was decided, therefore, that the visit to Paris should be abandoned, and that our voyage should proceed not further than the Flanders battlefields. Our passengers would, perhaps, have wished to view the three capitals, Amsterdam, Brussels and Paris from the air during one day; nevertheless the visit to the battlefields zone proved to be an event which few of us are likely to forget easily. Antwerp was reached at 10.40 a.m. The great moated fort which surrounds Antwerp looked most impressive, appearing from the air as a huge and ornate mosaic. Around each fortress the ground is pitted with shell-holes, otherwise the town looks remarkably well preserved. At Antwerp, as at Rotterdam, messages were dropped addressed to the Mayor. Whilst flying south of the town and over the district of Hoboken we were interested to observe one of what appeared to be German submarine shelters on the banks of the Scheldt. Near Brussels we observed the old German Aerodrome off Evere, where a Zeppelin shed still stands. After dropping a message into Brussels at 12.45, we made for Lille, including in our route Enghien, Ath and Leuze.

As we approached Lille the shadow of War could be more plainly seen; shell-holes became common and complete churches rare. This part of the country is, however, well inhabited. Lille, which we flew over at 2.40 p.m., is a curious blend of the effects of War and Peace.

For instance, in the heart of the town we could plainly see a circus with roundabouts operating by the side of a large block of ruined buildings.

It is beyond Lille, in the area between Lille and Nieuport, by way of Armentières and Ypres that one had the strongest impressions of the havoc of War. For miles the land is a shattered, desolate and waterlogged waste; scarcely a habitation may be seen in any direction. Across it all blows strong and long streaks of dirty smoke from the fires of salvage parties busy clearing the ground. One would certainly not like to be marooned there.

Leaving the Belgian coast at Nieuport, a course was set for England, and we made a rapid return passage over the sea to Suffolk. We landed safely at Pulham at 6.20 p.m., after a trip of about 20 hours.

The guests who were having their first experience of airship travel were delighted with the trip, with the accommodation provided and the simple but varied meals furnished by our competent *chef* and served tastefully by our excellent waiter. The luncheon menu, which may be given as a sample of the fare, was as follows:—

R 33 Luncheon Menu
Natives du Mer du Nord.
Terduan Jambon "R 33."
Haricots Verts.
Pommes Saute Trans-Atlantique
Biscuit Glacé Bruxellois.
Friandise "Ad Astra."
Café.

As evidence of the views of the passengers, one of them remarked on landing that when he accepted the invitation he did not dream for one moment that he would be provided with a comfortable sleeping-berth, a dining-room, oysters for lunch—amongst other good things, and electric light; nor did he expect to have complete freedom to roam all over the ship and from one gondola to another, or yet to have placed before him a copy of the first aerial newspaper containing a full summary of the home and foreign news of the day transmitted by wireless. The message dropped in the Amsterdam Exhibition reads:—

"Gen. Maitland and all on board R 33 unite in expressing their most cordial good wishes to Gen. Snyders and the general committee of the Exhibition by whose kind invitation a visit to Amsterdam is made. It is their firm belief that the Exhibition marks the opening of a new era in the international progress of aeronautics."

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That Zeppelin Story!

"INTENTIONALLY misleading" is the way the *Freiheit* describes the recent semi-official statement regarding the destruction of several Zeppelins. The *Freiheit* points out that the Bremen *Arbeiter Zeitung*, on June 28, published the following report, which has not hitherto been denied in any quarter:—

"It is reported to us from a reliable source that the airships L 14, L 41, L 42, L 63 and L 65, which according to the terms of the Peace Treaty had to be surrendered, were destroyed by officers and warrant officers on the night of June 23-24, in the Nordholz Zeppelin Hangars for the same motives as those for which the War Fleet was destroyed at Scapa Flow.

"In accordance with the Armistice conditions the motors and gondolas had been removed, and the airships had to rest on frames suspended by ropes. On the night of June 23, the frames were removed and the ropes severed, with the result that the airships dropped to the ground and were smashed to pieces."

The same paper also published a report that the airships at Ahrhorn Aerodrome, on the East Frisian Coast, had been destroyed.

AIRSHIPS*

By Wing-Commander T. R. CAVE-BROWNE-CAVE, C.B.E., R.A.F.

Fabrics

THE principal difficulty which is experienced with the use of airships for long periods, more particularly in tropical countries, is the deterioration of the fabric under the action of sunlight. This deterioration takes two forms—firstly, the strength of the textile material is decreased, and, secondly, the gas-holding properties of the proofing material are destroyed.

The rigid airship contains a large number of gasbags formed of the lightest possible gastight material. This is usually a very light cotton cloth proofed with goldbeaters skin stuck to it by means of rubber solution. The skins are then varnished as a protection against moisture. The actual tensile strength of this fabric is only sufficient to prevent damage during the motion of the gasbags in the ship's framework.

The outer surface of the ship is formed by an outer cover of linen of much the same strength as that used for aeroplane wings. The duties which this outer cover has to perform are very important. It has to be stretched sufficiently tight to prevent any flapping or appreciable deformation during the passage of the ship through the air. It must be waterproof, and also water-repellant, in order to reduce the weight added to the ship by a shower of rain. A further function, and one very difficult to fulfil, is the protection that it has to afford to the internal gasbags.

The outer surface of non-rigid ships is made with a shining aluminium finish so that as much as possible of the heat and light is reflected. The rubber immediately under the surface is made to contain considerable more *litharge* than otherwise necessary as this material absorbs a large proportion of that light which passes the reflecting surface. A similar system is being followed with the outer covers of rigid airships, and judging by the excellent results obtained from somewhat similar methods employed on aeroplane fabric, the protection both to the fabric of the cover and to the internal bag, should be very good.

Experience with rigid outer covers is at present small, but it has been found that with non-rigid envelopes made by our latest methods of proofing, the deterioration of the outer surface becomes clearly visible before any serious loss of strength has taken place.

The envelope of a non-rigid ship is formed of layers of fabric which have to be of considerable strength in order to resist the small internal pressure necessary to maintain the rigidity of the ship. Between these layers of fabric is placed one or more layers of gas-tight rubber.

The Effect of Wounds

The strength of a fabric envelope can be calculated with considerable accuracy if it is assumed that the fabric is undamaged. The reduction of strength caused by a small local wound is, however, very considerable, because such a wound causes concentration of stress at the edges of the hole, and there is a tendency for the fabric to rip. This dangerous concentration of stress can be very largely avoided in a two-ply fabric if the threads of one ply are laid at 45 deg. to those of the other. The threads of the diagonal ply then form an effective means of distributing the stress, and also when tearing actually begins tend to form together into a bunch which exerts considerable concentrated resistance to the extension of the tear.

The following table shows the reduction of strength caused by a ½-in. wound cut in a 6-in. strip in a direction at right angles to the direction of the stress :—

Fabric.	Strength wounded. / Strength unwounded.
Single-ply cotton	0·39
Single-ply linen	0·52
2-ply parallel CC	0·33
2-ply diagonal BD.	0·57
2-ply diagonal CC.	0·72
3-ply diagonal CCC.	0·68

The strength of the fabric used in the envelope of the "N.S." airships is 1,770 kilos per metre, *i.e.*, 100 lbs. per inch.

The stress in an airship envelope is very largely determined by the internal pressure which it is necessary to maintain in order to keep correct shape. The circumferential stress which this pressure produces in the fabric is, like that in an ordinary boiler shell, about twice that in the longitudinal direction. Ordinary fabric is usually of about equal strength in the warp and weft directions, and in order to resist the circumferential tension the envelope has to be made with a quite unnecessary longitudinal strength with a consequent increased weight.

It has been found possible to reinforce an envelope by means of flat bundles of string placed circumferentially round the envelope at suitable intervals, so that these strings contribute the difference between the circumferential and longitudinal tensions. The fabric, therefore, need only be made sufficiently strong to take the longitudinal tension. This system of re-inforcement has not at present been tried on a full-size envelope, but was found to give very satisfactory results when adopted on 20-ft. model envelopes which were tested to destruction.

In considering the best material for envelope reinforcement, very careful attention had to be directed to the tensile strength of a material compared with its weight for a given length. This was found to be most conveniently represented by the length of the strand which would hang vertically down without breaking under its own weight. This was termed the breaking length of the material. Values for some usual materials are given in the table :—

Material.	Breaking length in metres.
Thread, 3-strand cotton	12,600
Thread, 3-strand flax	15,900
Thread, 3-strand hemp	12,800
Pains light rocket cord	28,600
Best Italian hemp cord	27,500
Airship cotton fabric	10,000
Aeroplane linen fabric	14,000
Envelope fabric (proofed)	4,000
Re-inforcing string tape	12,600
Aluminium 10 tons/in.	6,400
Duralumin 24 ton/in.	14,400
Mild steel 30 tons/in.	6,200
H/T steel 100 tons/in.	20,600

Gas Tightness

The gastightness of fabrics and of seams formed in them is a matter which has been very thoroughly dealt with in papers to the Advisory Committee for Aeronautics, which it is understood will be published very shortly. It may, however, be said that the amount of hydrogen which leaks out through the fabric of an airship is a matter of purely nominal importance with fabrics of the excellence now available. The matter of real importance is the passage of air through the fabric into the gas space. This air reduces the purity of the gas, and unless very large quantities of gas are consumed by the ship by discharge through the valves, it is impossible to eliminate this air sufficiently to maintain the gas purity which is necessary to give the ship her required lift.

An interesting point which has been clearly established is that the air which diffuses into the gas space tends to collect at the bottom of the envelope, more particularly in trilobe ships where the circulation of gas is less free than in circular envelopes. Samples of gas taken from within 12 in. or so of the bottom of the envelope show a hydrogen purity of some 1 per cent. lower than that in the rest of the envelope. Further, the ratio of oxygen to nitrogen in this impurity shows that the air has come in by diffusion and not by mechanical leakage. This puddle of impure gas only collects while the ship is at rest in the shed, and is quickly dissipated as soon as flight is started.

Some of the chemical and physical changes which accompany the loss of gas-tightness of a rubber-proofed fabric are at present very obscure. Loss of gas-tightness appears to proceed very slowly for a considerable time, and then to become very rapid, almost in the nature of a sudden collapse. In some cases the gas-tightness is actually found to increase for a short time after the fabric has been made.

Temperature Effects.

The effect of the sun's radiation on the outer surface of the ship produces other important results. It raises the temperature of the gas and the air contained within the outer envelope to a point considerably above that of the surrounding air. This results in what is termed "false lift." Immediately the strength of the sun's rays decreases the superheat begins to disappear, and the false lift of the ship is reduced. The extent of this superheat sometimes amounts to 30 deg. F. to 35 deg. F., corresponding to a loss of some

* Lecture delivered to Engineering Section "G" British Association.

6 per cent. of the total lift of the ship. A rigid ship flying towards the sun superheats the gas in her forward compartments considerably more than that aft, and a change of trim results. Flow of air over the surface of the ship, and the circulation of air between the outer cover and the gasbags of a rigid ship tend to reduce superheat.

Changes of temperature, in which the gas and air readings remain equal to each other, do not involve change of lift unless the expansion of the gas is sufficient to involve discharge of gas from the ship. If the ship becomes light and is allowed to rise higher than is otherwise necessary, much gas may be discharged. If weight can be taken into the ship, so that she does not rise, the loss of gas may be avoided, and this may be of considerable value during the next night when the ship has cooled down, and possibly absorbed moisture.

There are several methods of taking weight into the ship. One is to condense the exhaust, and by this method a weight considerably in excess of the weight of fuel burnt can theoretically be obtained. It is found that the exhaust gas from a 260 h.p. engine can be cooled to within 10 deg. F. of the atmosphere temperature in a cooler weighing about 120 lbs. This would, in a rigid airship, take the place of a silencer weighing some 60 lbs., and the added weight is not, therefore, very great. The form of cooler used resembles a honeycomb radiator with 1-in. tubes through which the air passes, the exhaust passing through the space around the tubes. There is, however, difficulty in this condensation, because the cooling surfaces rapidly become fouled and conductivity very greatly reduced.

An alternative is to draw water direct from the sea, either by a propeller-driven pump contained in a body towed by the ship and discharging water up a hose, or by filling a specially-shaped fabric drogue and hoisting that weight of water into the ship by means of an ordinary winch. Both these operations involve considerable difficulty in handling the ship, more particularly because at the time she wants water she is seriously out of trim.

A further and possibly more promising alternative is to burn the hydrogen which would otherwise have to be discharged, and to condense the water of combustion. This is considerably easier than condensing the exhaust gas, because there will be no fouling of the cooling surfaces.

Hydrogen as Fuel

Experiments have been made on the use of hydrogen as fuel, and considerable success has been achieved. It is found that with very simple gear hydrogen can be burnt in an ordinary airship engine. When burning hydrogen alone it is not possible to develop more than 25 per cent. or 30 per cent. of the power which the same engine would give on petrol. If greater power is attempted serious detonation in the cylinder results. By providing a hydrogen-air mixing valve in parallel with the petrol carburettor it is possible to obtain any fraction up to the full power of the engine by suitably proportioning the relative amounts of hydrogen and petrol mixture burnt. The proportion of hydrogen which it is possible to burn depends upon the proportion of full power which is required from the engine. Under all ordinary circumstances a very considerable saving in fuel can be achieved.

The risk of fire in airships has considerably reduced the warlike operations which these aircraft have been allowed to undertake. For commercial purposes some small risk of fire also exists. The proportion of this risk which is due to the presence of hydrogen is, in the case of commercial craft especially, considerably smaller than is generally believed. The engines and other possible sources of ignition are carefully arranged at a considerable distance away from any point at which gas can possibly be discharged, and the speed with which gas when liberated rises clear of the ship, is such that only a very serious fire in one of the engine cars could possibly be communicated to the gas.

Although during the war British airships flew nearly 3,000,000 miles, the only ships which were destroyed by fire were, one, the first, " S.S." ship which ran into some telegraph wires and caught fire, the crew escaping; two, a coastal ship which landed on the water and caught fire for an unknown reason, and, lastly, an " S.S." ship which landed on top of another in a thick fog.

The petrol system is a source of danger which is probably at least as great as that due to the gas. Large quantities of petrol are stored in the keel of a rigid airship, and the petrol system is necessarily connected to the engine cars. The possibility of transmitting fire to the envelope of the ship would be very greatly reduced if paraffin or an equally safe fuel could be employed. The added safety which would be derived from a less inflammable fuel would probably justify some increase in the weight of machinery necessary to develop the required horse-power.

Weight of Engine, etc.

It may here be well to draw attention to the relative importance of the weight of the engine and the weight of the fuel consumed. This relation is very different from that which obtains in an aeroplane where the length of flight is considerably less. An aeroplane engine weighs some 3 lb. per horse-power, and may be expected to burn a weight of fuel equal to its own in six hours or eight hours. The machinery of an airship will, of course, during an ordinary passage, run for many times this duration of flight, and, further, a large proportion of the flight will be carried out at less than the full power of the engines. A " North Sea " airship carried out one patrol of 101 hours, while the flight of R 34 to New York involved a continuous flight of 106 hours. From this it will be clear that an airship engine must be one of the very highest fuel economy, not only at full power, but also at fractions down to 25 per cent. of the maximum power. The increase of weight of engine justified by a small improvement in fuel economy is, therefore, considerable.

The use of steam for airship propulsion has been considered, and although the convenience of such a system is very great, and the weight of machinery, including boiler and condenser, is not seriously in excess of the corresponding petrol engine, there appears at present no likelihood of reducing the fuel consumption to much less than 1 lb. per horse-power hour. This is clearly prohibitive when compared with the consumption by a petrol engine of less than 0.5 lb. per horse-power hour.

In addition to the requirement of high fuel economy, it is of the greatest importance that an airship engine should be able to run for very long periods without risk of breakdown. A further point is that the engine should be arranged in such a way that all its parts which are liable to failure during running, are made easily accessible, so that a repair can be carried out in the air. This is a very important difference from the aeroplane engine, which is normally inaccessible during flight. An airship engine can be stopped during flight, and must be regarded as at least as easily accessible as that of a motor-boat. The space round it is generally at least as ample, and it is only in exceptional circumstances that the motion of the ship will in any way interfere with the execution of repairs. Defective magnetos have frequently been replaced by others of a different type and the new ones correctly timed. One repair which involved the removal and replacement of one complete cylinder of a two-engined ship, was successfully carried out, and the engine used without trouble for the remainder of the flight. A satisfactory airship engine must, therefore, be one in which repairs, even of this magnitude, can be effected as easily and with as little delay as possible.

Propellers.

The variation of speed of an airship renders the design of her propellers one of very considerable difficulty. She may be required to run on one engine developing its full power and giving the ship a very low speed, or on all her five engines giving her full speed. Under these circumstances the efficiency of her propellers must necessarily be low in some conditions. A satisfactory means of varying the pitch of the propeller should, therefore, lead to a very considerable gain in the efficiency of the ship as a whole. A propeller in which the alteration of the blade angle is sufficient to give reverse thrust would be very convenient, and avoid the reverse gear-box now required.

One of the advantages which an airship possesses over an aeroplane is that her greater range will enable her to avoid atmospheric disturbances, and also to take more advantage of any depression which can be approached in such a way as to obtain a favouring wind. Meteorological information can now be obtained from a fairly considerable number of points, but prediction is rendered considerably easier if it is possible to read the barometer at a point on the ground below the ship herself. A barometer reading taken in the ship is, of course, useless unless the height of the ship can be determined by means other than barometric pressure. Instances have occurred in which the barometer has changed so greatly during an airship's patrol, that the ship struck the water during the night when her aneroid registered a height of 300 ft. When crossing an unknown country it is also desirable to determine the height above the ground, independent of the barometer and height above sea-level. To determine this height above the sea, it has been suggested that the report of a rifle discharged in the ship and reflected from the surface of the sea should be timed. A special form of stop-watch, which was used for gunnery research during the War, makes it possible to measure the interval

between two similar sounds with an accuracy of within $\frac{1}{10}$ sec. Up to the present the method has not been found very satisfactory, on account of the difficulty of hearing the reflected report if the ship is not stopped, or her speed seriously reduced. It is, however, possible that in an emergency this device could be used with success by stopping or slowing down the ship. This is, of course, a serious disadvantage to the method, and something better is required.

The generation of hydrogen is probably the greatest difficulty in extending the use of airships to more or less undeveloped countries. Hydrogen at present is manufactured for airship purposes mainly from coke. Some method of manufacturing hydrogen from wood or other vegetable matter would probably prove of very great value in allowing airships to work in those countries in which they have their greatest advantage over other possible forms of transport.

The use of helium has been considered, and much experimental work has been done on the extraction of this gas from the natural gases obtained from wells in Canada and America. The price of this gas, when made by present methods, or by any system which appears probable in the immediate future, is, however, almost prohibitive, and failing a really remarkable discovery such as the possibility of getting hydrogen to degrade into helium, there does not appear much possibility of reducing the price to a commercial possibility.

Stresses

The calculation of the stresses produced in the hull structure of a rigid airship under the many different conditions encountered is one of considerable complexity, and one which cannot come within the limits of this lecture. The most interesting members of the structure may be regarded as long struts some 16 ft. long, designed to fail, when the ends are supported freely, under an end load of some 8,000 lbs., or a distributed load of some 2,000 lbs., *i.e.*, 120 lbs. per foot. The construction of such a girder has involved several very interesting, though probably not novel, principles. The bracing pieces, which have to be made of an easily stamped section, are formed so that their thin edges come in the neutral axis of the piece, and are, therefore, little exposed to secondary bending. The end of the bracing piece is carefully shaped so that the loading is as little eccentric as possible. Bracing pieces are arranged in pairs, and are riveted together where they cross. The piece in compression can then derive support from its fellow, which must at that time be in tension.

An interesting manner of assessing the relative merits of various types of strut is to consider how far the construction allows the material to develop its full yield stress. If a form of construction is such that the crippling load divided by the area of cross section of the strut approximates closely to the yield stress of the material, the form of construction must be considered very good.

The advantage to be gained, from a commercial point of view, by using a large ship is clear from the following consideration. For ships covering the same range at the same speed and having similar shape, the displacement varies as the cube of the linear dimensions (l^3), the weight of hull, fabric, e c., as l^3, the resistance, and, therefore, the weight of machinery and fuel, as l^2 :

$$\therefore \underset{K_1 l^3}{\text{gross lift}} = \underset{K_2 l^3}{\text{wt. of hull, etc.}} \quad \underset{K_3 l^2}{\text{wt. of machinery}}$$

$$\text{Freight fuel consumed} = K_4 l^2.$$

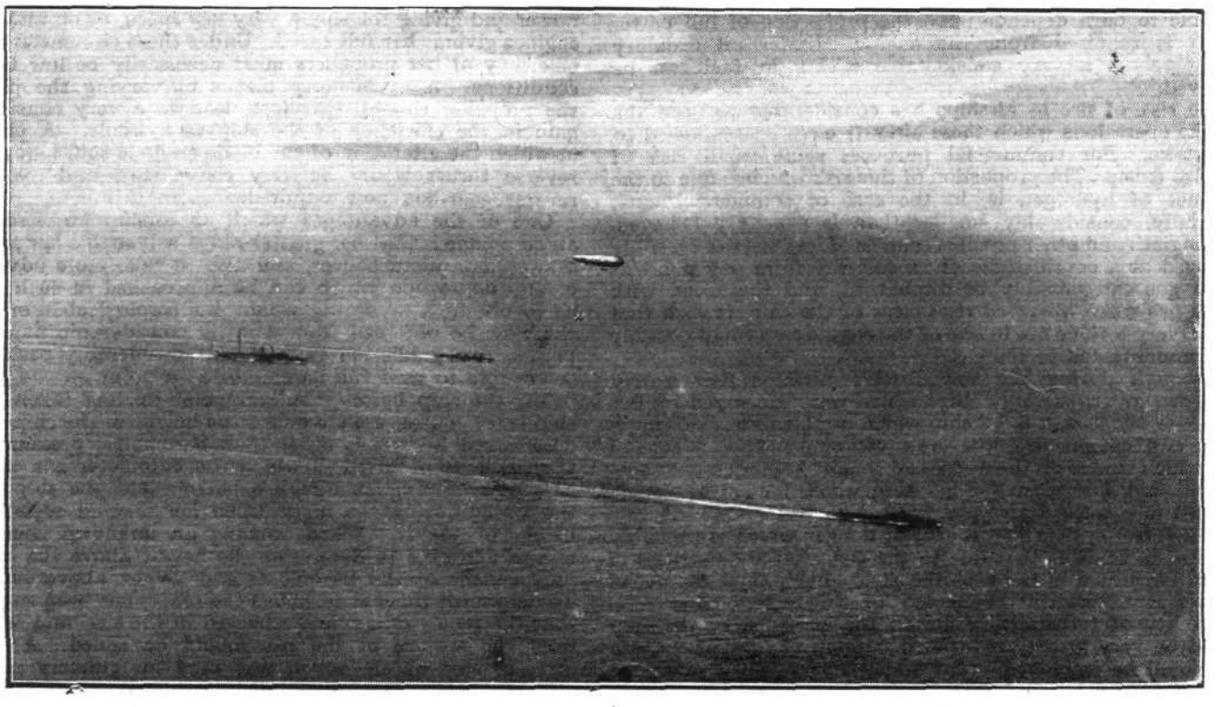
$$\text{Hence} \quad \frac{\text{freight}}{\text{fuel}} = \frac{K_1 l^3 - K_2 l^3 - K_3 l^2}{K_4 l^3},$$

a function which clearly increases with the size of the ship.

It is, therefore, interesting to consider what limits the size of rigid and non-rigid ships of the types at present in view.

Increase of length of a rigid of given cross section appears to call for no increase in the strength of her hull, provided the load is properly distributed. No serious restriction to the length of rigids is, therefore, in view. The most dangerous stresses are produced in the main transverse members of rigids by unequal inflation of the gasbags on either side of a bulkhead. The bulkhead is formed of wires lying in the transverse plane and attached to the joints of the main transverses. Difference of pressure in adjacent bags, therefore, induces great tension in these wires, and hence compression in the transverse frame. The possible head of gas produced by the total deflation of one bag increases with the ship's diameter, and so does the span of the wires. In a ship of large cross section, therefore, the compression in the transverse frames becomes very serious.

The non-rigid airship is not, as at present designed, divided into compartments by diaphragms capable of resisting a difference of pressure in the gas on either side. If the ship takes up a very steep pitch the internal pressure at the upper end of the ship will be seriously increased if the pressure at the lower end is still to be maintained above atmospheric. This accumulation of pressure at the upper end of the ship while pitching may prove a serious difficulty in a really large non-rigid, but it is probable that by the employment of a circular section and fabric re-inforced in the manner already referred to, sizes considerably greater than any we have built at present can be achieved. The development of a large non-rigid offers—at any rate in the author's opinion—very great promise of advantage, because the ratio of disposable lift (fuel and freight) to the total displacement of the ship is so good. A non-rigid of 500,000 cub. ft. capacity, *i.e.* carrying a useful load of $7\frac{1}{2}$ tons, will have about the same value (50 per cent.) for this ratio as a rigid ship of four times the capacity (2,000,000 cub. ft.).



Transports escorted by a Blimp, as seen from a sister airship.

FLIGHT

AIRISMS FROM THE FOUR WINDS.

SIGNS of *The Times*. This week the following announcement appears in our great daily contemporary, and is a welcome milestone in commercial aviation :—

> SMALL ADVERTISEMENTS BY AEROPLANE.
>
> With the view of facilitating the insertion of urgent advertisements from readers of *The Times* in France, arrangements have been made whereby they will be delivered in London by aeroplane daily.
>
> All advertisements received at the Bureau du Times, 2, Chaussée d'Antin, Paris, up to 9.30 a.m. each day will be in time for the following day's issue of *The Times*.

ANOTHER sign of the times. In a fascinating description of a property advertised for sale, early in October, on Shuna Island, 18 miles south of Oban, by the auctioneers, Messrs. J. A. Lumley and Dowell, one of the "attractions" noted is "a good landing-ground for aeroplanes in front of the mansion." So here's a chance for some up-to-date sportsman to acquire on October 7 a nice tight little island 2½ miles long and nearly 2 miles broad in parts, with the aeroplane landing ground, a motor launch and other craft thrown in. It is to be hoped old Scotch families of the Clan Gotterdammering are barred from bidding.

To have carried with it the real D'Annunzio artistic touch, the Fiume *coup* last week-end ought to have been inaugurated by the poet's entry into the city, overhead his followers, *à la* 'plane.

QUITE interesting should be the exhibition opening on October 8 at the Royal Academy, of examples by artists who have done camouflage work for the Navy and Royal Air Force. In addition to paintings and sculpture, there will be models of actual camouflage.

THAT the risk of travelling in rigid airships is not regarded as very onerous by the insurance world, may be gathered from the fact that one of the passengers in R 33, upon the occasion of her cruise to the Continent and back the other day, effected in London an insurance on his life for £1,000 at a premium of less than £2, equivalent to less than 4*s*. per cent. This is merely by the way, but it is suggestive. In other directions, where the aeroplane is the means of transit, quite considerable business is being transacted, amounts of £20,000 being quite in the ordinary run of policies, while the Aviation Insurance Association is known to have just quoted for two individual risks of £100,000 each. The one risk is on the life of a business man who proposes to travel by air every month between London and Paris, and the other relates to an American who proposes to make a flight in the United States. Directly supporting this association are nearly 250 underwriters and two large insurance companies, so that the actual share of each underwriting name in such large amounts is not very considerable.

Some R.A.F. Impressions

Wing-Commander Kilner, D.S.O., with bar, Commander, R.A.F. Training Depôt, Cranwell, Lincs.

LIEUT.-COL. E. S. HALFORD, of the Air Ministry, is now the happy owner of the Stamp Souvenir Album of the First Transatlantic Air Post, and the Newfoundland Permanent Marine Disasters' Fund is the richer by the £210 which Col. Halford paid for this "prize" at the Stamp Exhibition Auction, 110, Strand, last week. The stamp is the one used to frank letters conveyed by Mr. H. G. Hawker on his Atlantic flight, and is mounted in an album, autographed by Lord Northcliffe and by all those immediately concerned in the great race, viz., Capt. Sir John Alcock, Capt. Sir A. Whitten Brown, Mr. H. G. Hawker, Capt. K. Mackenzie Grieve, and Mr. T. Sopwith. In addition, the stamp is initialled on the back by the Postmaster-General of Newfoundland. The £210 goes without deduction to the Marine Disasters' Fund. Lieut.-Col. Halford has left the album on view in the Stamp Exhibition till the end of the month, where it may be seen daily from 10 to 6, free of charge. Altogether a very unique historical souvenir.

SCIENTIFIC research in connection with aerodynamics appears to be directly responsible for another little item likely to be of benefit to the health and comfort of mankind generally. It is a device to obtain the best effects from a radiator described by Prof. G. H. Bryan at the British Association meeting. Prof. Bryan states that his application of the aerofoil theory to the heating of buildings occurred to him while working at the

mathematical theory in connection with aeroplanes. The results obtained had agreed with the theory far better than was anticipated. His proposal was that over each radiator in a public or private building there should be placed a deflector arranged at an angle to be determined by experiment. In the ordinary way, said Prof. Bryan, hot air from a radiator was drawn up towards the window—for some reason he did not know radiators always seemed to be placed beneath windows—and so passed away from the interior of the room. With the deflector in use, however, the hot air passed from its under side into the room, while the mass of cold air between the outer side of the deflector and the window formed a non-conductor and prevented the hot air from escaping through the window. It was essential that the deflector should have a sharp edge so that a free stream of hot air could be secured. With a rounded edge eddies of hot air were produced, which did not carry so far into the room.

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How the Italian police surprised the frequenters of a gambling house at the fashionable resort of Capri (an island 20 miles south of Naples) by seaplaning over from the mainland is described in a telegram from Rome. The police realised that if they crossed by the regular steamer their arrival would be known. As it was, going over by air after dark, they raided the house, to find the forbidden amusement in full swing—under, be it noted, the ownership of a British subject.

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WHY, after this, looks as if no "profession" will be safe from sudden catastrophe. Bill Sykes suggests it's playing it a bit low down, and that 'planes will be employed next in circumventing the honest burglar during his eight hours working stretch, and there'll be nothing for it but to call for a national strike.

Our Airplane London–Paris Service has been maintained despite adverse weather conditions.

Lighthouse-keeper looking seaward, dramatically: **"No craft can weather such a storm!"**—*looking up*—**"Well, I'm blowed!"**

"Flight" Copyright.

Not a Dervishes' dance or a Jazz competition, but just a "change over" in the men's relay race at the R.A.F. Athletic Association's meeting at Stamford Bridge.

LADY SYBIL GRANT'S Airship Exhibition opened last Monday at Prince's Galleries, Piccadilly. "Airships in Peace and War," as Lady Sybil has named her show, has the support of the Air Ministry, and all proceeds from this collection of very interesting exhibits will be devoted towards an airship bed at St. Dunstan's. Prince's Galleries should be crowded during the few weeks this very varied exhibition will be open. Music, interpreted by the "Masked Airship Band," is a feature of the entertainment.

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NOT a few sensitive young men have been oppressed with a desire to render into verse their early sensations when flying. Flight-Commander Jeffery Day was one of them—after his first flight he proposed "with very great ease to write some most superior verses on the thrill and grandeur of it all." But this lad, who won the D.C.S. at 22, and whom six Germans, acting in concert, managed to kill at last, had plenty of sense. "His mind," he says, "was as full of half-grasped impressions as a small bag packed tight with young eels," yet he realised that "one doesn't sit down to write a rhapsody on strawberries and cream with a belly full of 'em, but with an empty belly and a great desire for them."

"Oh, wise young judge!"

\- - -

FOR all that, he was able to receive, retain, and transmit many of his impressions in verse, which, even if it is not of the highest calibre, is at least smooth to the ear, and pleasantly stimulating to the mind :—

"The engine stops : a pleasant silence reigns—
Silence, not broken, but intensified
By the soft, sleepy wire's insistent strains,
That rise and fall, as with a sweeping glide
I slither down the well-oiled slides of space
Towards a lower, less enchanted place."

In the clouds :—

"The wing-tips, faint and dripping, dimly show
Blurred by the wreaths of mist that intervene ;
Weird, half-seen shadows flicker to and fro
Across the pallid fog-bank's blinding screen."

\- - -

Nor does he fail in his gallant attempt to convey in metre the illusion of actual flight :—

"My turning wing inclines towards the ground ;
The ground itself glides up with graceful swing,
And at the plane's far tip twirls slowly round,
Then drops from sight again beneath the wing
To slip away serenely as before,
A cubist-patterned carpet on the floor.
"Hills gently sink and valleys gently fill ;
The flattened fields grow infinitely small ;
Slowly they pass beneath, and slower still,
Until they hardly seem to move at all."

There is movement in this, and colour and imagination. The little book, which is sold by Messrs. Sidgwick and Jackson at 3s. net, reveals much of the writer's spirit, and the extent of our loss.

Casualties

Capt. RAYMOND VICTOR KANN, R.A.F., who was killed in a flying accident at Stonehenge recently at the early age of 22, was the elder surviving son of Mr. and Mrs. R. Kann, of 37, Lancaster Gate. He was educated at Charterhouse and Geneva, and in September, 1914, though only 17 years of age, joined the Suffolks as a private. Early in 1915 he was given a commission in the Royal Scots Fusiliers, and proceeded to France with his regiment, taking part in the battle of Loos and other important engagements. In June, 1916, he transferred to the R.F.C., being promoted captain in September, 1918, and at the time of his death he was about to take up a permanent commission in the R.A.F.

Brig.-Gen. CHARLES FREDERICK LEE, C.M.G., who was killed in an aeroplane accident at Weston-super-Mare on September 1, at the age of 31, was the son of Maj. W. F. Lee, T.D., J.P. He was educated at Eton, joined the King's Royal Rifles (60th), and was adjutant of the 2nd Battalion when he retired about two years before the War and joined the Somerset Yeomanry. He transferred to the R.F.C. at the outbreak of War, and went to France in 1914 as adjutant to Air-Marshal Sir Hugh Trenchard (then a lieut.-col. commanding a wing). Afterwards he became brigade-major to Vice-Air-Marshal Sir John Salmond, and in July, 1916, he was appointed R.F.C. Staff Officer, 1st Class, and promoted lieut.-col. When Sir John Salmond went to the War Office as Director-General of Military Aeronautics, Gen. Lee (then lieut.-col.) was sent to America in command of the British Aviation Mission, where he did very valuable work, and was promoted acting brigadier-general.

AN enthusiastic, if not latterly a very prominent, friend of aviation died on September 9 last, in the person of Mr. EDWIN O. SACHS, F.R.S. Ed., F.R.G.S., the chairman of the British Fire Prevention Committee. Mr. Sachs and his committee did wonders in modernising and improving British fire-prevention and extinction methods, and his work may be said to have been as sound as it was non-spectacular. Only officers of fire brigades, building-construction experts, electrical engineers, and the like, can have known how much excellent work he did, because he had a very great distaste for personal publicity—thanks to his having had far too much of it in his younger days, when—with friends like the Duke of Marlborough—he was one of a number of very keen volunteer firemen, never so happy as when they were at work upon a big blaze. There was a memorial service in his honour conducted at the church of St. Martin's-in-the-Fields, Trafalgar Square, on September 16 last, attended by a large gathering of those who knew and esteemed him.

Married

NOEL JAMES BREBNER, late Lieut., R.A.F., only son of Mr. and Mrs. Percy J. Brebner, of East Sheen, was married on September 10 at Christ Church, East Sheen, to ETHEL MAUD, younger daughter of Mr. and Mrs. JOHN WALKER, of East Sheen.

Capt. WILLIAM FOSTER, R.A.F., youngest son of Mr. Robert Foster, of Stockeld Park, Wetherby, Yorkshire, and the late Hon. Mrs. Robert Foster, was married on September 2 at St. Mark's, North Audley Street, to MARJORIE, only child of Sir ERNEST HATCH, formerly M.P. for the Gorton Division, and Lady Constance Hatch, of 46, Upper Grosvenor Street, W.

Capt. HERBERT E. JUDGE, late R.A.F., son of Mr. and Mrs. James Judge, of Cambridge, was married on September 10 at Bromsgrove Parish Church, to OLIVETTE, elder daughter of Mr. and Mrs. ALBERT EADIE, of Rigby Hall, Bromsgrove.

Capt. MAURICE GASKELL SYKES, R.A.F. (India Civil Service), youngest son of T. Gaskell Sykes, West Ealing, was married on September 4, at St. Jude's on the Hill, Golder's Green, to CONSTANCE MARY LILIAN, younger daughter of the late HUGH STEWART ROBERTS.

Lieut. GEORGE EDWARD LEIGHTON WOODHOUSE, R.A.F., younger son of Mr. and Mrs. Arthur Woodhouse, of 17, Heygate Avenue, Southend, was married on September 1 at All Saints', Nottingham. to MARY, only daughter of SMITH-FOWLER MANNING, Esq., J.P., and Mrs. Manning, of The Tower House, Nottingham.

To be Married

The engagement is announced between Maj. HAROLD H. BALFOUR, M.C., late 60th Rifles and R.A.F., second son of Col. and Mrs. Nigel Harington Balfour, of Belton, Camberley, and BARBARA, only daughter of CLAUDE A. SHEPPERSON, A.R.A., A.R.W.S., and Mrs. Shepperson, of 5, Mulberry Walk, Chelsea.

The engagement is announced between RALPH BRANTHWAYT BEEVOR, late 28th Squadron, R.A.F., eldest son of Mr. and Mrs. Ralph J. Beevor, of Reymerston, St. Albans, and grandson of the late Sir Thomas Beevor, Bt., and PHYLLIS MARGARET ASHBURNER, eldest daughter of Mr. and Mrs H. O. MINTY, of Nessfield, St. Albans.

The marriage arranged between Fl. Lieut. D. S. CROSBIE, R.A.F., and DOROTHY GRACE MATTINGLY will take place very quietly at the church of St. Mary-le-Strand, on Wednesday, October 8, at 12,.30 p.m.

The engagement is announced between Lieut. VICTOR ELLVERS, R.F.A. and R.A.F., son of the rector of Melbury Abbas, Shaftesbury, Dorset, and AUDREY GUEST, daughter of the late Mr. GEORGE ELLIOTT, K.C., and Mrs. George Elliott, of 54, Cheyne Court, Chelsea.

The marriage arranged between Capt. GERARD FANE, D.S.C., R.A.F., and Miss RHODA BACON, will take place on Wednesday, October 1, at 2.15, at St. Andrew's Church, Raveningham, Norfolk.

The engagement is announced between Maj. PAUL COPELAND MALTBY, D.S.O., A.F.C., Royal Welsh Fusiliers, attached R.A.F., younger son of Mr. and Mrs. C. J. Maltby, Walgrove, Harpenden, Herts, and WINIFRED RUSSELL, eldest daughter of Mr. and Mrs. J. H. PATERSON, 6, Moray Place, Edinburgh.

The engagement is announced between Capt. PATRICK CAMERON OLIVER RIDDELL (late of the Wiltshire Regt. and R.A.F.), elder son of the late Patrick Riddell and Mrs. Riddell, Noirmont, Weybridge, to ALICE MOUBRAY, younger daughter of the Rev. SPENCER R. A. BULLER, R.D., and Mrs. Buller, the Rectory, Weybridge.

A marriage has been arranged, and will shortly take place, between Lieut. F. W. SOUTHGATE, late R.F.C., third son of Henry Southgate, Needham Market, Suffolk, and ANGELA, elder daughter of Mr. and Mrs. FOLKARD, Addiscombe, Surrey.

A marriage has been arranged, and will take place on October 2, between Capt. CHARLES E. TURNER, R.A.F., and Miss ELSIE HOPKINS, only daughter of Mr. and Mrs. T. E. HOPKINS, of Perrysfield, Oxted, Surrey.

The engagement is announced, and the marriage will shortly take place between Temp. Maj. GEORGE BANKART TURNER, M.B.E., R.A.F., son of Col. F. Mansel Turner (late R.A.), of Norton, Guildford, and KATHLEEN MAY GRAHAM, youngest daughter of Mr. and Mrs. BANKART, of Manton Grange, Oakham.

Items

Gen. SEELY is making steady progress towards recovery from his recent accident, in which he suffered injury to the knee as the result of a fall while staying at Brooke.

No. 40 Squadron. R.A.F. A dinner in connection with the above is being arranged for Friday, September 26. Will those who wish to attend communicate before September 19 with Cap. H. C. Todd, R.A.F. Club, 13, Bruton Street, W., or Maj. the Rev. B. W. Keymer, H.Q., Midland Area, R.A.F., Leamington Spa ?

Among the passengers on board the *Aquitania*, which left Southampton on September 6 for America, was Commodore BEAUMONT, president of the American Aero Club in France.

THE ROYAL AIR FORCE

London Gazette, Sept. 9.

The following temporary appointments are made :—

Staff Officers, 3rd Class.—(Air) Flight-Lieut. G. J. C. Maxwell, M.C., D.F.C., A.F.C. ; (Aug. 29) vice Flight-Lieut. E. O'D. Crean. Flight-Lieut. L. A. K. Butt ; (Sept. 1) vice Flight-Lieut. W. A. A. Chauncy.

The following temporary appointments are made :—

Staff Officers, 2nd Class.—(Air) Capt. G. A. Scott, from S.O.3 ; (Feb. 12, and to be actg. Maj. till April 30). (P).—Maj. E. V. H. Mackenzie ; (June 25). (Q.).—Capt. A. Smith, from S.O. 3 ; (May 30).

Staff Officers, 3rd Class (P.).—Lieut. R. Elphick ; (June 14). Capt. D. C. Hydes, from S.O. 4 (1st Grade) ; (April 1). Lieut. G. S. Lardner ; (July 1).

Flying Branch

Sec. Lieuts. to be Lieuts. :—(Hon. Capt.) H. J. Bullock ; (Aug. 25, 1918) (substituted for the notification in the *Gazette* of July 29). H. Rhodes, D.F.C. ; (Nov. 30, 1918). G. A. Lynch ; (Dec. 17, 1918). F. A. Downes ; (Feb. 8).

Sec. Lieut. P. C. Bailey (late Gen. List, R.F.C. on prob.) is confirmed in rank as Sec. Lieut. (A.) ; (March 15).

A. F. Williams (Lieut., Mon. R., T.F.) is granted a temp. commn. as Sec. Lieut. (O.) ; (May 23, 1918, and to be Hon. Lieut.).

The following relinquish their commns. on ceasing to be employed :—Sec. Lieut. (Hon. Lieut.) A. H. Waddy (Lieut., Beds. R.) ; (Feb. 9). Lieut. B. C. M. Ward (Lieut., E. Surr. R.) ; (Feb. 13). Sec. Lieut. F. L. Norden, (Lieut. R. Scots R.) ; (July 1). Lieut. E. T. Weigall (Lieut., R.H. and R.F.A.); (July 20). Sec. Lieut. (Hon. Lieut.) W. H. Norman (Lieut., R.A.) ; (August 7). Sec. Lieut. W. Coker, D.F.C. (Lieut., Temp. Capt., E. Surr. R.) ; (Sept. 3).

Then follow the names of 113 officers who are transfd. to the Unemployed List under various dates.

The following relinquish their commns, on account of ill-health caused by wounds, and are permitted to retain their rank :—Capt. H. F. Davison ; (Aug. 29). Lieut. W. S. V. Oliver ; (Aug. 21).

The following Lieuts, resign their commns. :—D. E. P. Chaplin (Lieut., R.H. and R.F.A.) ; (Sept. 6). W. H. G. Milnes, M.C. (Lieut., R. War. R.) ; (Sept. 10).

The initials of Sec. Lieut. G. W. Thornton-Inman are as now described, and not " D. W.," as stated in *Gazette* of Aug. 26.

The name of Lieut. Philip Wilson is as now described, and not " P. Wilson " as stated in the *Gazette* of June 6.

The name of Lieut. E. C. Cockburn is as now described, and not " Cockwin," as stated in *Gazette* of March 25.

The notification in *Gazette* of June 3 concerning Lieut. G. F. Dell is cancelled.

The notification in *Gazette* of July 18 concerning Sec. Lieut. R. W. Silk is cancelled.

The notification in *Gazette* of Aug. 15 concerning Lieut. G. F. Bell is cancelled.

The notification in *Gazette* of Aug. 26 concerning Sec. Lieut. A. K. Doull is cancelled.

Administrative Branch

Lieuts. (O.) to be Lieuts :—R. S. Herring, M.C. ; (March 18) (substituted for notification in *Gazette* of April 15, wherein this officer was described as Lieut. R. R. Herring). T. Whitaker ; (April 17).

Capt. G. R. Kevill-Davies (Capt., Dgn. Gds.) relinquishes his commn. on ceasing to be employed ; (July 7).

Then follow the names of 27 officers who are transfd, to the Unemployed List under various dates.

The notification in *Gazette* of June 25, 1918, concerning H. E. Rea is cancelled.

The notification in *Gazette* July 15 concerning Sec. Lieut. J. C. Duncan is cancelled.

Technical Branch

Maj. G. P. Grenfell, D.S.O., is graded for purposes of pay and allces. as Lieut.-Col. while employed as Lieut.-Col. Grade (A.) ; (May 1).

Sec. Lieut. (Hon. Lieut.) (actg. Lieut.) L. W. Allen, M.C., to be actg. Capt., whilst employed as Capt., Grade (B.) ; (April 1, 1918) (substituted for notification in *Gazette*, Nov. 19, 1918).

Sec. Lieut. K. E. V. Beswick to be Lieut. ; (Oct. 11, 1918).

Secd. Lieut. (Hon. Lieut.) E. A. Gulson (since demobilised) to be Lieut. ; (April 2, 1918), without pay and allces. of that rank prior to Nov. 1, 1918) (substituted for notifications in *Gazettes* April 11 and May 23).

H. E. Rea is granted a temp. commn. as Sec. Lieut., Grade (B.) ; (June 21, 1918).

Lieut. K. L. Williams (Lieut., I.A.R.O.) relinquishes his commn. on reversion to I.A.R.O. ; (May 17).

Then follow the names of 19 officers who are transfd. to the Unemployed List under various dates.

Maj. L. C. Hope relinquishes his commn. on account of ill-health, and is permitted to retain his rank ; (July 25). (Substituted for the notification in the *Gazette* of Aug. 5).

The notification in the *Gazette* of May 13 concerning Sec. Lieut. J. Sewell is cancelled.

Medical Branch

Capt. (actg. Maj.) C. J. G. Taylor, M.B. (Surg.-Lieut., R.N.V.R.) relinquishes his commn. on ceasing to be employed ; (Aug. 1).

Transferred to the unemployed list :—Capt. W. S. T. Connell ; (Feb. 3). Capt. T. R. Hunter ; (Aug. 22).

The notification in the *Gazette* of August 8 concerning Capt. (Actg. Maj.) C. J. G. Taylor is cancelled.

Memoranda

Lieut. G. H. Hill is granted the hon. rank of Capt. ; (March 31). (Substituted for the notification in the *Gazette* of May 27).

Then follow the names of 53 Cadets granted hon. commns. as Sec. Lieuts.

The following relinquish their commns on ceasing to be employed :—Temp. Hon. Lieut. W. J. Parkinson ; (Feb. 23). Capt. W. A. A. Chauncy (Capt. Yorks. R.) ; (Sept. 3). Maj. R. H. Woods, M.C. (Capt., K.R.R.C.) ; (Sept. 7). Lieut. P. H. Morrissey, M.B.E. (Paymaster, R.N.) ; (Sept. 1).

Then follow the names of 5 officers who are transfd. to the Unemployed List under various dates.

Col. (actg. Brig.-Gen.) R. E. T. Hogg, C.M.G., C.I.E. (Maj., Bt. Lieut.-Col., Indian Army), resigns his commn. ; (July 10), and is granted the hon rank of Brig.-Gen.

The following officers have been granted short service commns. in the ranks stated, with effect from Sept. 12 (except where otherwise stated.) They will retain their seniority in the substantive rank last held by them prior to the grant of the short service commn., except where otherwise stated :—

Squadron Leaders.—R. P. Willock (A.), T. B. Meyer (T.), W. Sowrey, A.F.C. (A.).

Flight Lieutenants.—C. G. Murray (S.O.), J. L. Robertson (S.O.), F. Hudson, M.C. (A.), E. D. Johnson, A.F.C. (A.), L. A. McDougald (T.), E. N. E. Waldron (Ad.), A. D. Spiers (T.), H. O. Fellowes (Ad.), H. J. Edgar (A. and S.), W. H. E. Kemp, A.F.C. (A.), H. O. Barnaby (S.O.), D. W. Clappen (T.), A. C. H. Groom, D.F.C. (A.), N. Keeble, D.S.C. (A.), C. G. Hetherington, M.B.E. (T.), A. L. Messenger (A.)., E. J. P. Burling, D.S.C., D.F.C. (A. and S.), D. W. King (T.), T. L. Williams, M.C. (Ad.), W. H. Oakey (T.), C. A. Rea, A.F.C. (A.), H. V. Worrall, D.S.C. (A. and S.), A. E. Siddons-Wilson (T.), G. A. Richardson (T.), R. F. Osborne (T.), L. P. Ferris-Scott (Ad.), T. Le G. Pynches (T.), H. Cox (T.), F. J. Vincent (A. and S.), D. F. Lucking (T.), A. G. N. Belfield (Ad.), H. G. Etheridge (T.).

Flying Officers (from Flight Lieutenants).—G. W. Hemming, D.S.C. (A.), R. C. Savery, D.F.C. (A.).

Flying Officers.—W. J. Standish (T.), R. V. Kann (A.), R. C. Bryant (A.), F. L. Barnard (A.), A. G. Jarvis (A.), H. C. Peirce (T.)., L. L. Brown (A.), G. W. Lee-Barter (T.), L. C. Tyson (S.O.), H. J. Birtles (S.O.), E. C. Kelly (A. and S.), J. G. Walser, M.C. (A.), W. H. Howell (S.O.), A. H. Barnard (T.), A. F. Warner (T.), R. A. W. Powell (Ad.), H. E. Kirk (Ad.), T. A. Langford-Sainsbury, A.F.C. (A.), H. O. Brown, M.M. (A.), L. S. Punnett (A.), G. A. Lingham, D.F.C. (A.), P. D. Robins (A.), R. H. Bright (T.), C. H. Pownall (Ad.), G. L. Ormerod (A.), W. R. P. Allen (T.), S. M. Park (A.), D. H. Carey (A. and S.), A. J. Fyfield (T.), A. T. Shaw (T.), W. G. Pudney (A.), H. H. Sharp (T.), M. W. Baseden (A.), J. D. de Pencier (A.), G. A. Curtis (T.), F. H. G. Shepard, A.F.C. (A.), H. L. Woolveridge (Ad.), W. W. McConnachie (A.), E. R. Bruce (A. and S.), J. W. Milner (A.), R. A. Vosper (A.), J. L. Denman (S.O.), T. E. Drowley (T.), R. W. Godfrey (A.), G. R. Howsam, M.C. (A.), C. Eaton (A.), S. G. Linssen (T.), A. J. E. Broomfield, D.F.C. (A.), T. Rose, D.F.C. (A.), J. S. G. Wrathall (T.), J. T. Paine (A.), J. H. Dale (T.), S. R. L. Poole (T.), C. E. Horrex (A.), A. E. Sweeting (A.), L. G. Harvey (A.), F. G. A. Robinson (A.), K. D. Marshall, D.F.C. (A.), H. E. F. Saunders (T.), W. N. Plenderleith (A.), A. L. A. Perry-Keene (A.), G. L. Blake (A.), L. G. Stevenson (T.), J. T. Rogerson (A.), R. W. Warner (Ad.), C. F. C. Wilson (A.), D. N. Dickson (A.), A. G. Knight, M.B.E. (Ad.), H. C. McDonald (A.), W. J. Sivewright (A.), B. R. Rolfe (A.), G. H. Howarth (A.), H. M. Struben (A.), J. H. Jennings (T.), F. Susans, M.B.E. (T.), J. Freeman-Fowler (Ad.), G. H. Bittles (A. and S.), F. G. Brockman (T.), H. E. Fenwick (A.), A. H. Scaife (T.), A. H. Burmann (S.O.), A. Walters (T.), B. C. Adamson (T.), W. F. Duff (S.O.), F. J. H. Ayscough (A.), M. (W.) Nolan (A.), C. E. Amoore (T.), W. Chapman (T.), H. B. Day (Ad.), J. W. Gage (T.), H. S. Alger (T.), A. J. Martin (T.), A. E. W. Finch (T.), H. P. Bridges (S.O.), W. C. Farley (T.), C. J. Polden (T.), S. G. Newport (T.), T. H. Sills (S.O.), H. W. Nicholl (T.), A. Grimshaw (A.), J. L. Miles (T.), G. Baker (T.), J. J. Ironmonger (T.), H. J. Lucas (T.), W. J. Cleasby (T.), H. F. Webb (S.O.), G. L. G. Watson (T.), E. S. Baker (T.), H. A. L. Way (T.), W. R. Fairbairn (Ad.), F. C. Worton (T.), J. E. C. Hammond (T.), S. C. Rose (T.), A. P. Woollett (T.), A. T. Wells (T.), A. J. Somers (S.O.), W. B. Francis (T.), G. W. Sturman (T.), A. Walters (T.), E. I. T. Duffield (T.), McD. Goodall (T.), J. S. Viner (T.), H. J. Adkins (T.), E. P. Dampier (Ad.), G. C. Maillard (Ad.), R. J. E. Haynes (T.), J. W. Hutchins (T.), G. J. Stroud, M.B.E. (T.), R. E. H. Allen (T.), A. H. Baker (T.), E. F. Thorpe (T.), W. Dickison, D.S.M. (T.), E. Parrett (T.), A. S. Berry (T.), E. V. E. Andrewartha (T.), C. A. Longhurst (T.), H. D. Fletcher (Ad.), J. F. Young (A. and S.), E. G. King (T.), G. W. C. Ravenhill (A.), H. F. J. Taylor (Ad.), A. W. Southall (A.), N. C. Waltho (A.), A. L. Courtenay-Dunn (A.), C. H. Flinn (A.), R. G. Mullette (A.), F. Cardwell (A.), C. E. Knight (Ad.), R. N. Walter (Ad.), A. M. Reidy (T.), J. M. Russell (Ad.), H. G. Sullivan (A.), A. C. Lobley (A.), R. L. G. Wright (A.), T. G. Bird (A. and S.), H. J. Gemmel (A.), V. G. A. Bennett (A. and S.), A. E. Pitcher (T.), S. Bingham (T.), R. G. Sims (T.), D. R. L. Powell (T.), E. W. Husband (T.), J. Mahoney (Ad.), R. W. Stevenson (Ad.), T. A. Higgs (Ad.), F. Dunlop (Ad.), D'A. D. A. Greig (A. and S.), J. B. Stockbridge (A. and S.), J. W. Bell (S.), T. L. Grey (T.), H. J. de Waal (Ad.), J. B. Slater (Ad.), I. G. G. Edgar (A.), J. S. Card (Ad.), G. A. F. Gibson (T.), C. Fenn (Ad.), A. H. Allan (T.), H. C. Haywood-Gibbons (Ad.), L. N. Sargent (Ad.), E. C. K. Kingston (A.), W. A. G. Goldsworthy (Ad.), N. Dainty (T.), W. A. Kyte (T.), J. McCarthy (Ad.), G. W. Robinson (Ad.), H. Cartwright (Ad.), V. B. Ranford (Ad.), H. A. Williams (Ad.), H. J. Bamber (Ad.), R. W. Stewart (Ad.), T. H. Jolley (Ad.), C. J. Elliott (Ad.).

Observer Officers.—H. Wisnekowitz, M.C., W. L. Rutledge (with effect from Aug. 10), R. A. C. Brie, J. C. Wallace, R. S. Langan, D.F.C., H. A. Boniface.

It is intended that officers employed as Stores Officers or on " Q " duties shall belong to the new Stores Branch when formed. Officers appearing in this *Gazette* who are at present so employed will be transferred to this branch on its formation, and will accept these short service commissions on that condition. They will then come on to the rates of pay of that branch, but will meantime be permitted to draw the higher rates laid down in the new scheme for officers on the General List. Any officer posted to the Stores Branch on its formation will then have the option of declining his short service commission.

Flying Branch

Maj. A. A. B. Thomson, O.B.E., A.F.C., is graded for purposes of pay and allowances as Lieut.-Col. whilst employed as Lieut.-Col. (A.) (from May 1 to June 30).

Second Lieutenants to be Lieutenants.—I. M. Moffat ; Nov. 27, 1918 (substituted for the notification in the *Gazette* of April 11). H. Booth ; Nov. 30, 1918. J. V. Scottorn ; Dec. 26, 1918. P. J. Baker, C. G. G. Fortune ; March 1. F. W. B. Anderson ; July 24

Sec. Lieut. R. A. Wade (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lieut. (A.) ; April 23.

The following relinquish their commns. on ceasing to be employed :—Lieut. (Hon. Capt.) (actg. Capt.) F. M. Hicks ; Feb. 2. Sec. Lieut. (Hon. Lieut.) T. F. Blight (Lieut., Manitoba R.) ; June 6. Sec. Lieut. P. S. M. Wilkinson (Lieut., Wilts. R.) ; June 25. Capt. A. Knight, M.B.E. (Lieut., Loyal N. Lancs. R.) ; June 30. Lieut. G. Thompson (Lieut. (Temp. Capt.), Brit. Col, R.) ; July 8. Lieut. G. L. S. Rowell (Lieut., R.A.) ; Aug. 5. Lieut. H. F. Attwater (Lieut., North'd Fus.) ; Sept. 1. Sec. Lieut. C. H. Woolwin (Lieut., Midd'x. R.) ; Sept. 4.

(Then follow the names of 91 officers who are transfd. to the Unemployed List under various dates.)

Capt. G. S. Creed (Lieut., S.A. Defence Forces) relinquishes his commn. on account of ill-health ; Aug. 25.

Lieut. J. E. Lewis relinquishes his commn. on account of ill-health caused by wounds and is permitted to retain his rank ; Sept. 3.

Sec. Lieut. R. H. Harlow relinquishes his commn. on account of ill-health July 12 (substituted for notification in *Gazettes* of Feb. 4 and Sept. 2).

Lieut. C. W. Wridgway (Lieut., Midd'x. R.) resigns his commn. ; Sept. 13.

The initials of Capt. A. N. Wyatt are as now described, and not " A. M.," as stated in *Gazette* of June 27.

The surname of Sec. Lieut. W. Cougle is as now described, and not "Gougle," as stated in *Gazette* of Dec. 10, 1918, on page 14573 (substituted for notification in *Gazette* of April 18).

The surname of Sec. Lieut. W. R. Forster is as now described, and not "Foster," as stated in *Gazette* of July 1.

The notification in *Gazette* of Sept. 6, 1918, concerning M. A. Watts is cancelled.

The notification in *Gazette* of Feb. 18 concerning Capt. F. M. Hicks is cancelled.

The notification in *Gazette* of April 1 concerning Sec. Lieut. W. H. Brown is cancelled.

The notification in *Gazette* of July 22 concerning Lieut. O. R. Gayford, D.F.C., is cancelled.

The notification in *Gazette* of July 29 concerning Lieut. J. Stewart is cancelled.

The notification in *Gazette* of Aug. 5 concerning Sec. Lieut. H. Thomas is cancelled.

Administrative Branch

The following Sec. Lieuts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts. :—E. Bentley (to June 25) ; (Hon. Lieut.) A. G. Buxton, J. E. Carter, W. R. Fairburn (to May 31) ; A. H. Jones, (Hon. Lieut.) H. O. Newland, J. B. Slater ; May 1.

The following Sec. Lieuts. are graded for purposes of pay and allowances as Lieuts. while employed as Lieuts. :—J. E. W. Billings (to June 30) ; T. Caine, R. N. H. Cole, J. S. Card, H. J. De Waal, E. I. T. Duffield, (Hon. Capt.) W. C. Green, M.C., H. C. Haywood-Gibbons, W. F. Hopkins, J. G. Le Brun (to June 25), (Hon. Lieut.) T. Mumford, F. H. Stapleton (to June 30), H. J. Thomas ; May 1.

Sec. Lieut. H. J. Grant is graded for purposes of pay and allowances as Lieut. while employed as Lieut. from (T.) ; May 1.

The following relinquish their commns. on ceasing to be employed :—Lieut. (Hon. Capt.) R. J. Porter (Capt. and Qrmr., R. Innis. Fus.) ; June 21. Sec. Lieut. C. W. Clutson (Sec. Lieut., Glouc. R.) ; Aug. 19.

(Then follow the names of 14 officers who are transfd. to the Unemployed List under various dates.)

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank :—Lieut. C. Lyons ; Aug. 29. Lieut. P. Sormani ; Sept. 5. Sec. Lieut. R. R. W. Millward (caused by wounds) ; Aug. 28.

Sec. Lieut. (Hon. Lieut.) A. G. Buxton relinquishes his commn. on account of ill-health contracted on active service, and is granted rank of Capt. ; Sept. 3.

Technical Branch

Capt. A. H. Kendall is graded for purposes of pay and allowances as Maj. while employed as Maj., Grade (A.) ; May 1 (substituted for notification in *Gazette* Aug. 1, wherein this officer was described as Capt. A. K. Kendal).

The following Sec. Lieuts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts., Grade (A.) :—A. G. Rigdon, E. J. Thorpe ; May 1.

The following Sec. Lieuts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts., Grade (B.) :—(Hon. Lieut.) G. F. Antell, G. Baker, (Hon. Lieut.) W. J. Cleasby (to June 30), L. A. Lavender (Hon. Capt.), E. R. Tongue-Croxall, A. Walters ; May 1.

Sec. Lieut. (Hon. Lieut.) S. Waring is graded for purposes of pay and allowances as Capt. whilst employed as Capt., Grade (B.) from (Ad.) ; May 1.

The following Sec. Lieuts. are graded for purposes of pay and allowances as Lieuts. whilst employed as Lieuts., Grade (A.) :—W. J. Coadwell, W. R. Day (to July 31), R. McG. Freemantle, M.B.E., J. W. Hutchins, L. E. Heather, H. O. Keenan, E. G. King, J. B. Meilke, M. F. Morris, H. W. Nicholl, J. A. Owen, P. R. Pratt, C. H. Paget, T. J. E. Thornton, J. Turnley, E. J. Williams, H. Williams ; May 1.

The following Sec. Lieuts. are graded for purposes of pay and allowances as Lieuts. whilst employed as Lieuts., Grade (B.) :—(Hon. Lieut.) A. Daniels, T. A. Dimon, (Hon. Lieut.) T. L. Grey, J. A. Joyce, C. A. Longhurst, P. G. Price, F. B. Reed, C. O. Towler (to July 31) ; May 1.

Sec. Lieut. A. F. Stevens is graded for purposes of pay and allowances as Lieut. whilst employed as Lieut., Grade (B), from (Ad.) ; May 1.

Sec. Lieut. H. Dear to be Lieut., without pay and allowances of that rank ; April 2, 1918 (substituted for the notification in the *Gazette* of March 7).

Sec. Lieut. E. G. King (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lieut., Grade (A) ; July 5, 1918 (substituted for the notification in the *Gazette* of Sept. 10, 1918, wherein this officer was described as E. C. King).

Sec. Lieut. F. Denham (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lieut., Grade (B) ; July 20, 1918.

Sec. Lieut. C. C. N. Wace (Capt., K.O.L.Y.I.) relinquishes his commn. on ceasing to be employed ; Aug. 2 (substituted for notification in *Gazette* July 22.)

Sec. Lieut. P. O. Lovett relinquishes his commn. on ceasing to be employed ; March 12 (substituted for notification in *Gazette*, April 1).

(Then follow the names of 14 officers who are transfd. to the Unemployed List under various dates.)

Lieut. C. B. Maddocks relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain rank ; Aug. 29.

The notification in *Gazette* July 4 concerning Lieut. C. B. Dick-Cleland is cancelled.

Medical Branch

Capt. W. H. Cam is transfd. to the Unemployeyd List ; Aug. 2.

Memoranda

The following Lieuts. are granted hon. rank of Capt. :—F. L. Mond (decd.) ; May 1, 1918. A. L. Chick, A.F.C. ; Oct. 13, 1918.

(Then follow the names of 25 Overseas Cadets granted temp. commns. as Sec. Lieuts. and 14 cadets granted hon. commns. as Sec. Lieuts.)

Lieut.-Col. (actg. Brig.-Gen.) J. A. Houison-Cranford, C.M.G., C.B.E. (Maj., retd., I.A. (Hon. Lieut.-Col. in Army), relinquishes his commn. on ceasing to be employed ; June 1, and is granted the hon. rank of Brig.-Gen. (substituted for notification in *Gazette* July 25).

The following relinquish their commns. on ceasing to be employed :—Temp. Hon. Capt. R. J. Bray ; Feb. 8. Temp. Hon. Lieut. T. Spencer ; Aug. 16. Temp. Hon. Lieut. C. Watt ; Aug. 31. Capt. P. Sidney (Capt., North'd Fus.) ; Sept. 2).

(One officer transfd. to the Unemployed List).

SIDE-WINDS

MR. C. W. BRETT, managing director of Barimar, Ltd., writes :—"I have been asked by the Secretary of our Football Club to say that he requires fixtures for the coming season—both home and away—from October 11 onwards. Perhaps secretaries of medium teams with open dates will kindly communicate with Mr. W. Pritchard, c/o Barimar, Ltd., 10, Poland Street, Oxford Street, W. 1. The Barimar ground adjoins Sudbury Town (Harrow) Station."

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WE understand that the well-known firm of Y. Goldberg, the specialists in plywood manufacturing and importing, has been converted into a private limited liability company under the style of Y. Goldberg and Sons, Ltd., with their registered offices at 7 and 7A, Kingsland Road, Shoreditch, E. 2, and the factory, which is known as the Aero Plywood Works, at Lawrence Road, Tottenham, N. 15. Mr. Harris Goldberg is the governing director, assisted by Mr. I. W. Goldberg as the director. The conversion will not affect the general conduct of the business, which will continue as in the past ; all debts and liabilities will be paid by the company on behalf of the firm, and all debts to the firm may be paid to the company.

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MR. BARCLAY HARDING WARBURTON, JUNR., of Philadelphia, U.S.A., has just taken his Royal Aero Club Certificate at the Grahame-White School of Flying, Hendon, under the instruction of Capt. P. T. Chamberlayne, Chief Pilot of the company. It is noteworthy that Mr. Warburton flew solo after four hours' dual instruction, and passed his certificate tests satisfactorily after having done 45 minutes of solo flying.

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BEARING in mind the bad weather at the end, the trip of Capt. Woolley from Hounslow to Amsterdam, on a Blackburn Kangaroo, on August 28, was distinctly good. The following is Capt. Woolley's report :—

"I left Hounslow at 12 noon. The weather was not very good, the clouds were about 2,500, still we made Lympne at 1 p.m. Put 30 gallons of petrol in and had lunch, and started again at 2.30 p.m. The weather now was getting very good. Very few clouds and very clear. I passed over Folkestone at 2,34, and made Calais at 3.0. It was simply perfect. I made up the coast and passed Dunkirk 3.1 p.m. Here I made up my mind to try and make Amsterdam without another stop. I passed Zeebrugge at 3.45, Flushing at 4 p.m. at 2,000, Rotterdam at 4.40 p.m. at 1,000.

"After leaving Rotterdam I ran into rain, and the visibility was very bad indeed ; still, I made Amsterdam at 5.22 p.m. It was simply fine not having to worry about Huns and anti-aircraft guns going over the Zeebrugge Mole. I could hardly believe that I was safe. I could see the block-ship in the entrance, and I can tell you the Royal Navy made a good job of it, it being very nearly right across."

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As a souvenir of the recent visit of Mr. Selfridge to Dublin on an Airco machine, Aircraft Transport and Travel have produced a little brochure setting forth the facts and containing reproductions of a number of photographs of incidents during the flight. It may be recalled that Mr. Selfridge likened the aeroplane to a "super-special" train and that phrase has been chosen as the title of the booklet. Copies may be obtained by any FLIGHT reader who applies to the Airco headquarters at 27, Buckingham Gate, S.W. 1.

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NEWS has been received from Amsterdam that a Airco 9R aeroplane fitted with a 450 h.p. Napier Aero engine, piloted by Capt. Gathergood, obtained the fastest time in a closed circuit race of 220 kilometres, the next machine to finish taking 10 minutes longer. Thirty-five competitors finished the course, and the average speed of the Napier-engined Airco was approximately 145 m.p.h. This same machine flew from Hounslow to Amsterdam in 2 hours 10 minutes, and returned on the afternoon of September 11 in 2 hours 8 minutes. This remarkable speed of 145 m.p.h. beats the British record for a closed circuit—also held by a Napier-engined Airco machine—by approximately 15 m.p.h.

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A VERY useful cabinet of "Leonard" Plug Gauges, the main and important feature of which is that they are renewable, is being marketed by G. W. Dowding & Co., 66, Victoria Street, S.W. 1. The set consists of 15 sizes ranging from ¼ in. to 1¼ in., and costs £4 17*s.* 6*d.* complete. In addition, it is decidedly interesting to note that the double-ended limit plugs can be supplied at proportionate prices on the same renewal principle. The firm will be happy to send their pamphlet showing illustrations and giving full particulars to all firms interested in this workshop necessity which has the additional merit of being British made.

1st Aviation Lieut. A. Cortinez Mujica, of the First Chilian Aviation Co. This autographed photo. has been sent by Senor Mujica to the Bristol aeroplane constructors as a memento of the first crossing of the Andes and back, during which flight he established the South American altitude record. The photo. bears the following inscription (translated):

The British and Colonial Aeroplane Co.,
Filton Works,
Bristol,
England.
As a memento of my flight on a "Bristol."
Santiago-Mendoza—Mendoza-Santiago,
5th April, 1919.
Armando Cortinez Mujica,
1st Aviation Lieutenant.

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PUBLICATIONS RECEIVED

Income Tax and Super-Tax 1842-1920. All the 1919 Budget Changes. Edinburgh: Oliver and Boyd, Tweeddale Court. Price 1*s.* net, post-free 1*s.* 2*d.*

"Twenty Years' Progress." Mann, Egerton and Co., Ltd., Norwich.

The Future of Aviation. By Jean Dargon. Translated by Philip Nutt. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. Price 10*s.* 6*d.* net.

Instructions for Charging and Operating "Exide" and "Clifton" Batteries. The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester.

The Transport Facilities of Sheffield. The Development Committee, Sheffield City Council, Town Hall, Sheffield.

A Treatise on British Mineral Oil.—Edited by J. Arthur Greene. London: Charles Griffen and Co., Ltd. Price 21*s.* net. Post free, 21*s.* 6*d.*; Abroad 22*s.*

Aluminium Sheet and Sections in Automobile and Aircraft Construction. The British Aluminium Co., Ltd., 109, Queen Victoria Street, E.C. 4.

The Shell That Hit Germany Hardest. By P. G. A. Smith. London: The "Shell" Marketing Co., Ltd., 39-41, Parker Street, Kingsway, W.C. 2.

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NEW COMPANIES REGISTERED

COMMERCIAL AEROPLANE WING SYNDICATE, LTD., 34-6, Gresham Street, E.C.—Capital £30,000, in £1 shares. Acquiring from A. A. Holle, of 19, Half Moon Street, Piccadilly, W., an invention for improvements in aero-foils for aeroplanes and the like. Under agreement with A. A. Holle and the Varioplane Co., Ltd. (vendors). The Varioplane Co., Ltd., may appoint three directors and the Blackburn Aeroplane and Motor Co., Ltd., may appoint two.

Y. GOLDBERG AND SONS, LTD., 7, Kingsland Road, Shoreditch, E. 2.—Capital £30,000, in £1 shares (5,600 preference). Acquiring business of a plywood and veneer and timber importer formerly carried on by H. Goldberg as "Y. Goldberg," at 7, Kingsland Road, E., and 52-6, Lawrence Road, Tottenham, N. H. Goldberg permanent governin g direct (1.

RESETTLEMENT

THERE are many officers and men of the R.A.F. who are demobilised or are about to be demobilised.

In order to assist those who are undecided or are seeking advice as to their prospects in civil life, the Editor has arranged for an expert, with wide experience of service, industrial and educational conditions, to give advice to those who may solicit it through the medium of this Journal.

Applications, which must be in writing, should be marked *Resettlement*, and addressed to the Editor, FLIGHT, 36, Great Queen Street, Kingsway, W.C. 2. They will be dealt with in these columns, as far as possible, in rotation.

M.P.B., CAPT., R.A.F.—We think your best plan would be to get in touch with the Consuls of some of the States you mention. They should be able to furnish you with the kind of information you are seeking. You can also apply to some of the leading manufacturers of flying boats whose advertisements appear in this Journal.

H.J.B., R.W.R., and OTHER FLIGHT CADETS.—We regret we are unable to give any rulings with regard to A.M.W.Os. or S.E.A.Os. or to supply copies of these orders. If still serving, apply to the demobilisation officer for current regulations with regard to honorary commissions, kit allowances, etc. If demobilised, write to the Secretary, Air Ministry, and give full particulars as to service, when appointed a cadet and the amount of training received. Information *re* kit allowance, and payment when admissible, can be obtained from Messrs. Cox and Co., St. Martin's Lane.

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AERONAUTICAL SPECIFICATIONS PUBLISHED

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m. = motors.

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